HYPERTEC

PC Enhancement Technology

HyperNet Fastprint

Multiprotocol

Ethernet/Fast Ethernet

Print Server

Administration Guide

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User's Guide

About This Guide

This *User's Guide* describes the operation of the *EtherP Admin* program, which can be used to conveniently configure and manage your HyperNet Fastprint print server from any personal computer running the Windows 3.1x, Windows for Workgroups 3.11, Windows NT 3.51, Windows NT 4.0 or later, or Windows 95 or later operating systems. Once your print server is configured, you can use it for printing from any Novell NetWare, TCP/IP, AppleTalk, or Microsoft network.

This *Guide* also describes the telnet interface, which you can use to configure your print server without the use of a Windows-based PC.

What Isn't Covered in This User's Guide?

This User's Guide concentrates on the software setup and management of your HyperNet Fastprint print server. Information about how to connect the print server to the network, to power, and to your printer(s), is covered in the print server's hardware *User's Guide*.

Contents of the User's Guide

This User's Guide is divided into three parts:

♦ Part I gives an overview of your HyperNet Fastprint print server and of the Windows-based *EtherP Admin* program you can use to manage it.

♦ Part II covers the initial steps you will need to take to set up your print server, configure it for printing from various network systems, and allow client workstations to use it to print documents.

♦ Part III covers daily administration tasks, how to troubleshoot problems with your print server, and how to use the telnet interface.

Introduction

This chapter introduces the printing and administration features of the HyperNet Fastprint of network print server products, and of the *EtherP Admin* program that you can use to set up and administer HyperNet Fastprint print server.

Background on Print Servers

Before personal computer networking became common, users who wanted to print from their personal computers needed to have a directly-connected printer. As laser

printers became common, it became too expensive for each user to have a dedicated printer, and some form of print sharing became even more necessary.

The simplest form of print sharing involves a switch box:
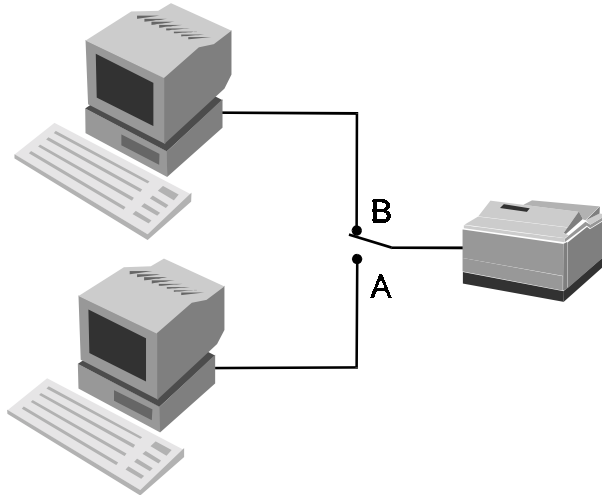
A switch box can make it more convenient for two or more users to share a single printer, but it requires long print cables unless the two users are close together. The users also have to coordinate their printing, which becomes difficult if more than two computers share a printer.

Server-based network operating systems (such as Novell NetWare) make it possible for a larger number of users to share printers. When a workstation user prints a document, network software on the workstation takes a file of instructions for the printer and stores them in a *print queue* on the server. The server takes each job in the print queue and sends it to the printer, which is either attached to the server itself or to one of the workstations on the network.
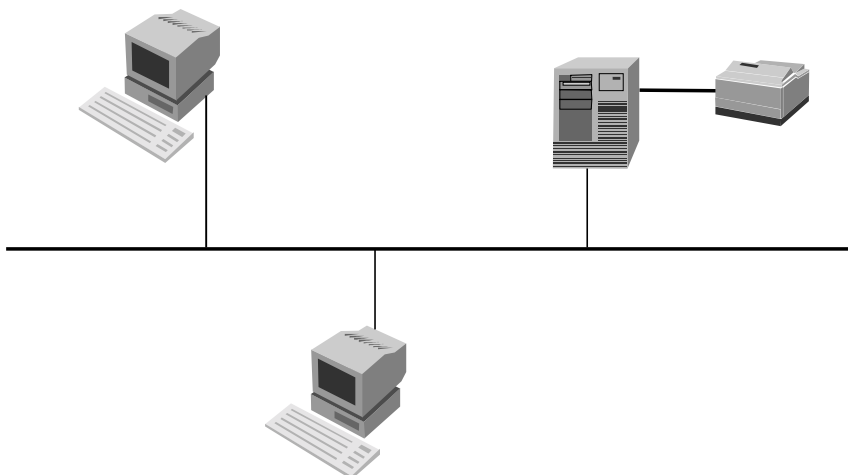
This arrangement allows a large number of people to share printers, and makes it possible to centrally manage the printers and their print queues.

This method has several disadvantages, however:

♦ It increases the load on the file server.

♦ The file server has a limited number of printer ports available.

♦ If printers are attached to the file server, then they have to be located near the server instead of near the users, which may be inconvenient.

♦ If printers are attached to user workstations, then print jobs will be delayed or printed more slowly as they are sent to the workstation. The remote printer software used on the workstation may also be incompatible with other software used on the workstation.

Remote print servers such as the HyperNet Fastprint multi-protocol network print servers make network printing more practical, because:

♦ Network print servers can be located anywhere on the network, making it easy to place printers near the people who will be using them.

♦ It is easy to centrally manage network print servers.

♦ The load on network servers is reduced.

♦ Multi-protocol print servers make it possible for printers to be shared by people using different network operating systems.

HyperNet Fastprint Print Server Administration Features

HyperNet Fastprint print servers can be centrally administered using the *EtherP Admin* program, making it convenient to manage all of your Ehter P-series print servers from a single Windows-based interface. *EtherP Admin* features include:

♦ Allows setup and modification of parameters for the server's printer ports, the server itself and for the NetWare (IPX/SPX), Microsoft Networking (NetBEUI), TCP/IP, and AppleTalk protocols.

♦ Allows administrators to view the status of each of the server's printer ports, including the printer status display if the printer supports PJL (Printer Job Language).

♦ Can display server statistics and status for troubleshooting purposes.

♦ Provides a convenient interface for setting up Novell NetWare 3.*x* servers (and 4.*x* servers in Bindery Emulation mode).

♦ Allows the print server's internal software to be conveniently upgraded to a new version.

In addition to *EtherP Admin* server based administration, HyperNet Fastprint print servers also support a telnet-based interface for networks that do not use Windows-based personal computers. This interface supports viewing and modifying all server, port, TCP/IP, and AppleTalk-related settings.

Network administrators using the industry-standard SNMP network management protocol can also monitor the print server from any network management console.

Installing and Starting the EtherP Admin Program

This chapter lists the requirements that your computer system should meet before you can install *EtherP Admin*, tells how to install the program, and how to start it.

System Requirements

We recommend that your system meet the following requirements to be able to use the *EtherP Admin* program:

♦ A PC-compatible computer with a 386 or faster processor

♦ One of the following Windows operating systems:

◊ Microsoft Windows version 3.1*x*

◊ Microsoft Windows for Workgroups version 3.11

◊ Microsoft Windows 95 or later

◊ Microsoft Windows NT 3.51, 4.0 or later.

♦ 4 megabytes of main memory (RAM)

♦ At least 4 megabytes of free hard disk space

♦ A Windows-compatible mouse or other pointing device

♦ An Ethernet network card with appropriate drivers (either NDIS or ODI)

You should also check your computer's settings:

♦ If you are using a screen resolution larger than 640 x 480 (standard VGA), the *EtherP Admin* display will look best if you use a "Small Fonts" setting.

♦ You need to have the IPX network protocol and the Novell NetWare client services enabled. *EtherP Admin* uses the IPX protocol for communicating with the print server.

You only need to have one workstation that meets the above requirements. It is not necessary to run the *EtherP Admin* program on every workstation. Ordinary network stations will still be able to print to your HyperNet Fastprint print server.

If you will only be using TCP/IP (UNIX) and/or AppleTalk protocols, you can use the telnet interface instead of the Windows-based *EtherP Admin*. For more information about using the telnet interface, see the *Appendix: Telnet Interface Administration* section on page 64.

Installing EtherP Admin

Follow the procedure outlined below to install *EtherP Admin*:

1. Insert *EtherP Admin* installation disk 1 into your system's 3.5" floppy drive (**A:** or **B:**).

2. If you are using Windows 3.1*x* or Windows NT 3.51, choose **Run…** from the Program Manager's **File** menu. Under Windows 95/Windows NT 4.x or later Windows-based operating systems, choose **Run…** from the **Start** menu on the taskbar. When the dialog box appears, type the pathname of the Setup program on the floppy drive (A:\SETUP or B:\SETUP) and click OK.

3. The Setup program will begin by copying some files and ask for your confirmation. Click the **Next >** button to continue.

4. The Setup program will then ask you to select a directory on your hard disk where you want it to install the *EtherP Admin* program. If you want a destination directory path other than the one shown, click the **Browse...** button to select it.

   Click the **Next >** button to continue the installation.

5. The setup program will copy *EtherP Admin* program files to the directory you selected, as well as create an EtherP Admin program group. Press the **Finish** button to complete the installation.

   Once the installation is complete, you can begin using *EtherP Admin*.

Starting EtherP Admin

If you are using Windows 95 or Windows NT 4.0 (or a later version of Windows), to start the *EtherP Admin* program:

1. Press the **Start** button in the taskbar.

2. Within the Programs menu, select EtherP Admin.

3. Select the EtherP Admin program.

For Windows 3.1, Windows for Workgroups 3.1x, or Windows NT 3.51,

1. In the Program Manager, double-click on the EtherP Admin program group icon to open it.

2. Double-click the *EtherP Admin* program icon.

The *EtherP Admin* program will then be ready for use. A sample EtherP Admin display is shown below:
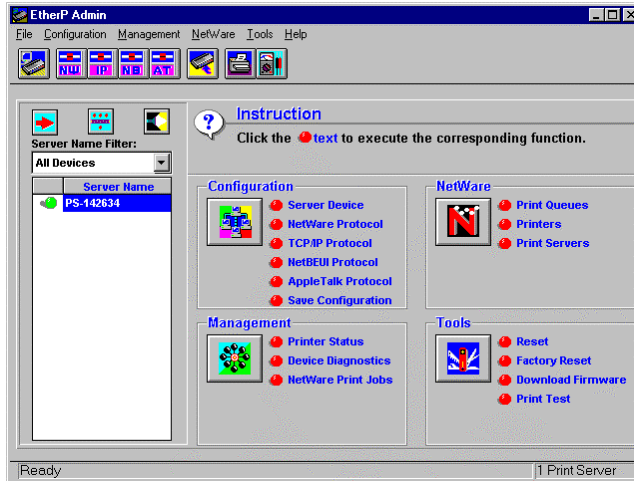
Instructions for using *EtherP Admin* to perform network print server "initial setup" tasks are found in the next chapter, *Getting Started Setting up Your Print Server*. For information about using *EtherP Admin* for other types of print server administration, see the *EtherP Admin Administration* chapter starting on page 52.

Detailed explanation of the *EtherP Admin* main window display may be found on page 52.

Getting Started Setting up Your Print Server

Before you can print over the network using your HyperNet Fastprint print server, you may need to perform some basic setup tasks. These include:

♦ Choosing a name for your print server.

♦ Setting a password to protect your print server's settings from unauthorized modifications.

♦ Choosing names for the print server's individual printer ports, and changing the port settings.

♦ Testing the operation of the print server and checking that the print server is connected properly.

Once you have finished with these tasks, you can proceed to set up network printing for Novell NetWare, Microsoft Networks, AppleTalk networks, and UNIX TCP/IP systems. Information about setting up printing on these network types is covered in the following chapters.

Choosing a Name for Your Print Server

Each HyperNet Fastprint network print server has a server name. When the print server is shipped from the factory, it has a default name of the form PS-*xxxxxx*, where *xxxxxx* represents the last six digits of the Ethernet address found on the print server's underside sticker.

You can choose any name you like for your print servers, provided that:

♦ The server name is less than 15 characters long.

♦ The server does not have the same name as any Novell NetWare fileserver on your network.

♦ The server does not have the same name as any of the print servers configured for your Novell network.

♦ The server does not have the same name as any Microsoft Networking client or server.

Uppercase and lowercase letters are not distinguished in print server names.

It is recommended that you limit your print server name to 15 characters, chosen from the letters A to Z, the digits 0 to 9, and the hyphen ("-") character. Names that violate this recommendation may not be usable with some networks.

To change your print server's name,

1. Select the print server in the *EtherP Admin* main window's server name display (or extended server display).

2. Choose **Server Device...** from the **Configuration** menu, or press the **Configure Server** button in the toolbar. (If you have already assigned a password to the server, you will have to enter it at this point.) *EtherP Admin* will display the Server Device Configuration window.

3. In the **Server Name** field, enter the name you have chosen for the server, and press **OK**.
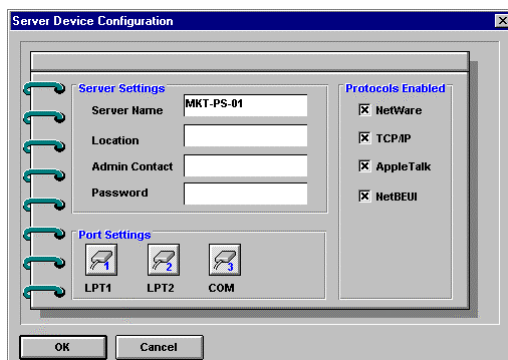
4. Choose **Save Configuration** from the **Configuration** menu, or press the **Save Configuration** button on the toolbar. This will store the new settings into the print server and restart it.

Your print server will now be accessible under the new name.

Setting a Password for Your Print Server

Unless you set a password, anyone on your network will be able to change your print server's settings. If your local network is connected to the Internet, then it may be possible to change your print server's configuration from anywhere in the world using the telnet interface. To protect your print server's integrity, you should set a password for your print server, and record it in a safe place.

To set the print server's password,

1. Select the print server in the *EtherP Admin* main window's server name display (or extended server display).

2. Choose **Server Device...** from the **Configuration** menu, or press the **Configure Server** button in the toolbar. (If you have already assigned a password to the server, you will have to enter it at this point.) *EtherP Admin* will display the Server Device Configuration window.

3. In the **Password** field, enter the password you have chosen for the server, and press **OK**.

4. *EtherP Admin* will ask you to confirm your new password. Enter the password a second time and press **OK**.

5. Choose **Save Configuration** from the **Configuration** menu, or press the **Save Configuration** button on the toolbar. This will store the new settings into the print server and restart it.
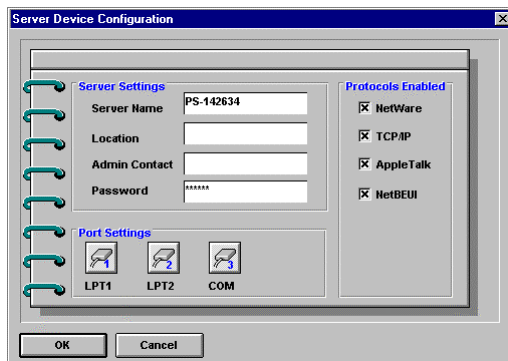
WARNING: *Do not forget or lose your print server password. If you forget it, you will have to contact your service representative to change the password.*

Changing Print Server Port Settings

Your HyperNet Fastprint network print server provides a number of parallel and/or serial printer ports. For each port, you can determine:

♦ The name of the port

♦ A comment describing the port

♦ For parallel ports,

◊ Whether or not data can be sent to the port at high speed

◊ Whether or not the attached printer supports HP's PJL (Printer Job Language) protocol.

♦ For serial ports,

◊ The serial port speed (baud rate), in bits per second.

◊ How many data bits are sent per byte

◊ How many stop bits are sent with each byte

◊ Whether or not a parity bit is sent, and if so what kind (even or odd parity)

◊ Whether or not software flow control is used (XON/XOFF)

◊ Whether or not hardware flow control should be used, and if so what kind (DTR, RTS, or DTR/RTS).

To set the parameters for a printer port,

1. Select the print server in the *EtherP Admin* main window's server name display (or extended server display).

2. Choose **Server Device...** from the **Configuration** menu, or press the **Configure Server** button in the toolbar. (If you have assigned a password to the server, you will have to enter it at this point.) *EtherP Admin* will display the Server Device Configuration window.

3. Press the button corresponding to the port you wish to change. For parallel ports, the following dialog will be displayed:
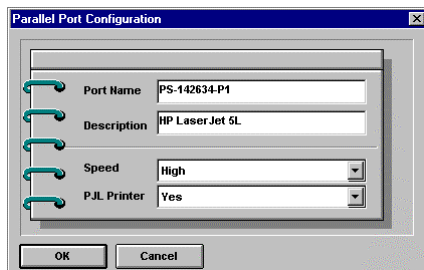
The fields that can be changed are:

◊ **Port Name** The name by which the port is known on various network systems. The port name should be at most 32 characters long and may consist of letters, numbers, and hyphens. Spaces are not allowed. (If the port will be used for LAN Manager clients, the port name can not exceed 8 characters.)

◊ **Description** A comment describing the port.

◊ **Speed** Determines whether or not the print server can send data to the printer at high speed. Most newer printers can accept high-speed data transmission; if your printer loses characters then you may need to choose the low-speed mode.

◊ **PJL Printer** Determines whether or not the printer accepts Hewlett Packard's PJL printer job control language commands. PJL allows users to

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get feedback on the printer's status. If the printer connected to the port supports PJL, set this field to Yes.

For serial ports, the following dialog will be displayed:
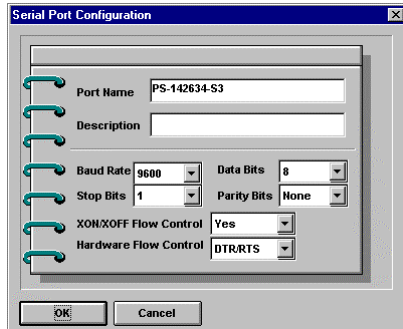
The fields that can be changed are:

◊ **Port Name** See above.

◊ **Description** See above.

◊ **Baud Rate** Sets the serial communications bit rate, in bits per second. Most printers default to 9600bps; rates from 300bps to 115200bps are available.

◊ **Data Bits** Sets the number of bits transmitted per byte on the serial port. Most modern printers use 8-bit data.

◊ **Stop Bits** Sets the number of stop bits transmitted per byte on the serial port. Most modern printers use serial protocol with 1 stop bit.

◊ **Parity Bits** Sets the type of parity check bit sent with each byte on the serial port. Most modern printers use a non-parity serial protocol.

◊ **XON/XOFF Flow Control** Determines whether or not the print server should respond to software flow control requests from the printer. When software flow control is used, the printer will send an XOFF character (Control-S) to the print server when its buffer is getting full, and an XON character (XON) when the buffer is no longer full.

◊ **Hardware Flow Control** Determines whether or not the print server should respond to hardware flow control requests from the printer. When hardware flow control is used, the printer will use the DTR, RTS, or both RS-232 control lines to control the print server's transmission of data in order to prevent the printer's buffers from getting full.

4. Click **OK** to exit the Port Configuration dialog.

5. Click **OK** to exit the Server Device Configuration dialog window.

6. Choose **Save Configuration** from the **Configuration** menu, or press the **Save Configuration** button on the toolbar. This will store the new settings into the print server and restart it.

Testing Your Print Server

Once you have set all of the necessary parameters, and have finished connecting your printer(s) to the print server, you should test each of the printer ports using the Print Test function.

For each port you wish to test,

1. Select the print server in the *EtherP Admin* main window's server name display (or extended server display).

2. Choose **Print Test.** in the **Tools** menu. *EtherP Admin* will prompt you for which port you wish to test.
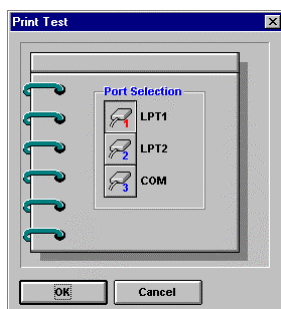
3. Choose a port and click OK. The print server should print out a "HyperNet Fastprint print server Test Page."

4. Repeat this procedure for each printer port with an attached printer.

NOTE: *The Print Test function may not work with PostScript printers that do not accept plain text files.*

Setting up Novell NetWare 3.x Printing

This chapter explains how you can set up your HyperNet Fastprint print server so that clients of your Novell NetWare 3.*x* server can print to attached printers. This chapter also applies if any workstations on your network are using a Novell NetWare 4.*x* server in bindery emulation mode. For information on setting up your print server for use with NetWare 4.*x* servers in NDS (NetWare Directory Services) mode, see the next chapter, *Setting up Novell NetWare 4.x Printing* on page 23.

Introduction to Novell NetWare Printing

On Novell NetWare networks, when a workstation user wants to print a document, the workstation network software sends a file containing commands for the printer to the NetWare file server, which places it in a print queue.

Some software may be written to send print jobs directly to NetWare print queues; Windows 3.1 using the NetWare network driver is an example of this type of

software. Software written to print to a local printer can print over the network if the printer port has been *captured*, using the CAPTURE command or a similar method.
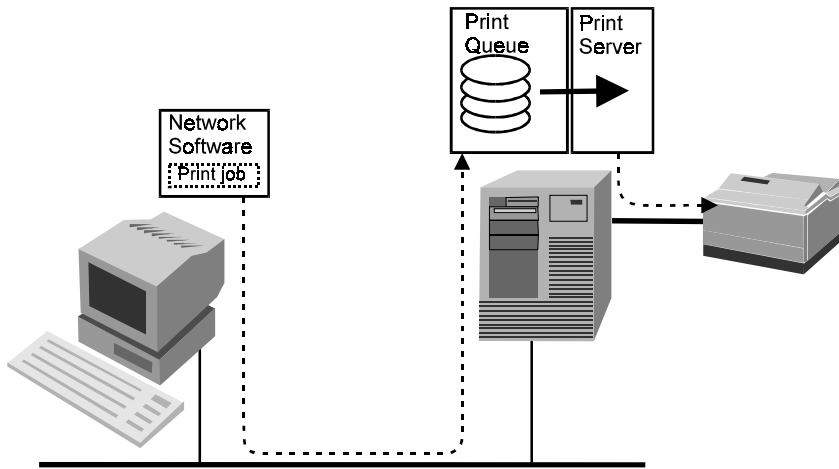
The file server makes its queues available to *print servers*, which may be located:

♦ on the same server,

♦ on a different server, or

♦ in a stand-alone print server device such as the HyperNet Fastprint network print server.

If a printer is directly attached to a NetWare file server, or if it is attached to a workstation on the network (using the RPRINTER program, as described below) then the print server needs to be run on the server itself.
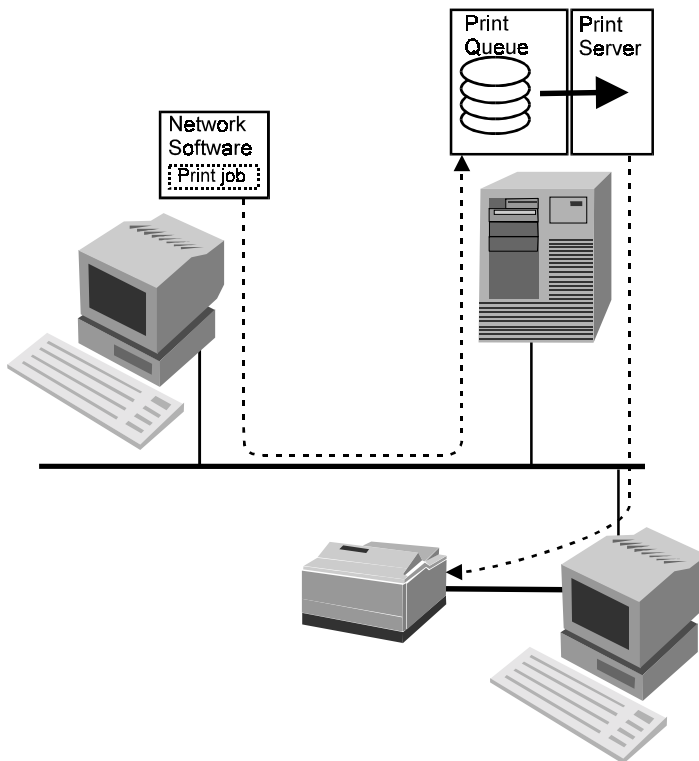
The PSERVER.NLM program is the NetWare Loadable Module (NLM) that runs on the file server and scans print queues both on the file server where it is running, and optionally on other servers. When PSERVER.NLM detects a new job, it directs it to the proper printer port.

If it is inconvenient to attach a printer directly to a file server, it may be desirable to connect it to a workstation using NetWare's remote printer facility and the RPRINTER.EXE program. When RPRINTER is used, the print server takes print jobs from the queue and sends them to the remote printer workstation, and the RPRINTER program then passes the jobs to the locally connected printer. This method, however, introduces delays in printing, and the remote printer software may be incompatible with software used on the remote printer workstation.

The HyperNet Fastprint print server acts as a NetWare print server, scanning the print queues on one or more NetWare servers and directing them to its attached printers. This reduces the load on the file server, while making it convenient for printers to be located anywhere.
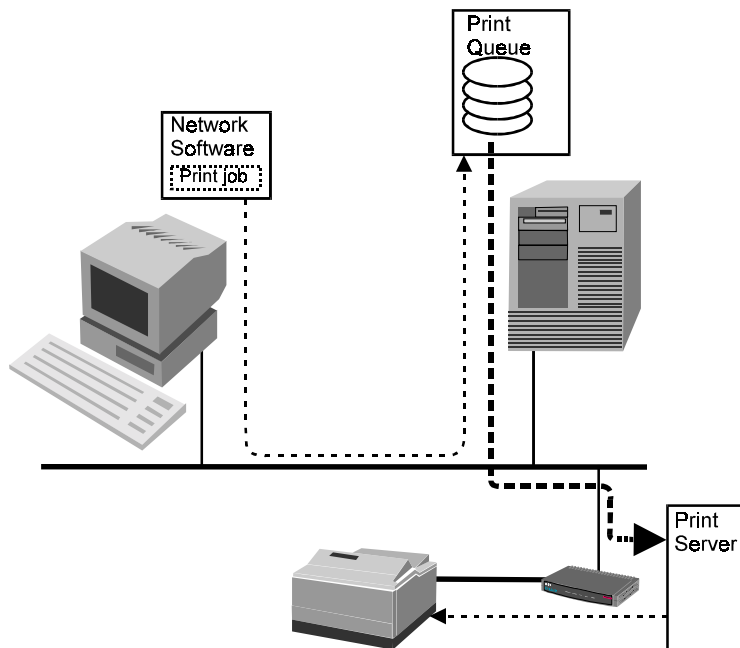
You can also use the HyperNet Fastprint print server for a remote printer connection instead of letting it scan the queues itself. This has the advantage of reducing the number of print servers in a large network, making management simpler. However, this causes the NetWare file server to be more heavily loaded, and increases delays in network printing.

Setting up as a NetWare Print Server

This section describes how to configure your HyperNet Fastprint print server to act as a NetWare print server, and how to set up a print server port to serve a print queue on the file server.

1. Make sure you are logged on to your NetWare server as SUPERVISOR, or that you have permissions equivalent to SUPERVISOR.

2. Make sure that the NetWare protocol is enabled in the server. This setting is found in the Server Device Configuration window, accessible by selecting the print server and choosing **Server Device...** from the **Configuration** window.
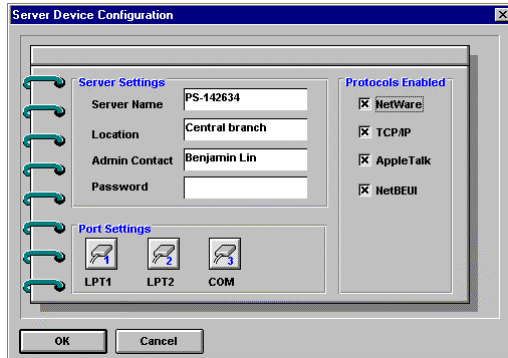
3. Choose **Netware Protocol...** from the **Configuration** menu, or click the Configure NetWare button in the toolbar. Click on the **Bindery Print Server** tab.
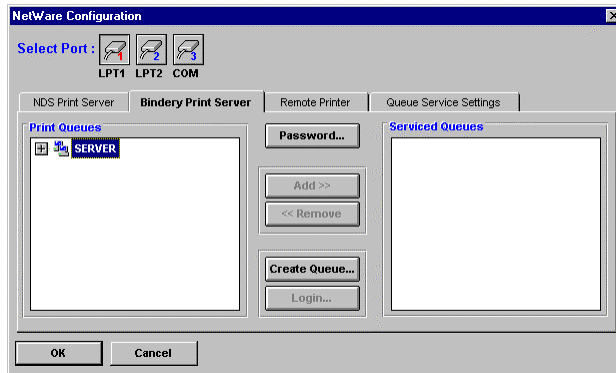
4. Click on the port button corresponding to the port you want to serve the print queue.

5. Click on the name of the NetWare file server where you wish the print queue to be stored. (Clicking on the ⊞ symbol to the left of the file server name will expand the list of print queues on the file server.)

6. Unless you want to use an existing print queue on the server, you will need to create a new print queue. Click the **Create Queue...** button, then type in the name of the new print queue and determine the file server volume where you want the print queue to be stored. Click **OK** to create the queue.
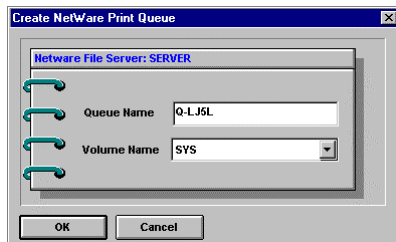
7. Click on the print queue name.

8. Click on the **Add >>** button to add the print queue to the Serviced Queues list for the port.
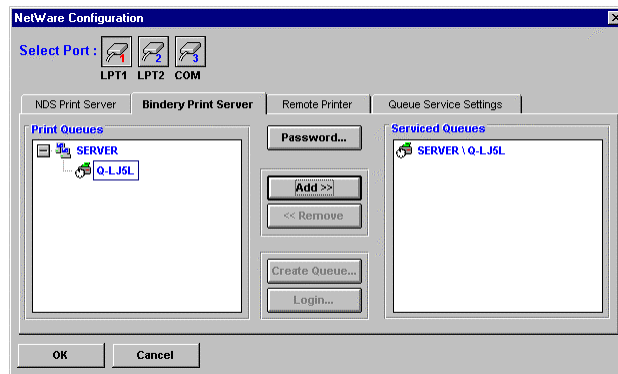
9. Click **OK**, then choose **Save Configuration** from the **Configuration** menu (or press the Save Configuration toolbar button) to change the settings in the print server and the NetWare server. The print server will restart itself and begin serving the specified print queue.

If you created the print queue in step 6, you may need to assign queue operators and queue users to the print queue using *EtherP Admin* or the NetWare PCONSOLE program. By default, SUPERVISOR is assigned as the print queue's operator, and all members of the group EVERYONE are allowed to use the print queue. For information about assigning print queue users and operators using *EtherP Admin*, see the *Managing Print Queues* section on page 57.

Setting up as a NetWare Remote Printer

Your network print server can also be set up as NetWare remote printer. This allows slightly easier administration, but may increase printing delays. To set up a printer port as a remote printer port,

1. Make sure you are logged on to your NetWare server as SUPERVISOR, or that you have permissions equivalent to SUPERVISOR.

2. Make sure that the NetWare protocol is enabled in the server. This setting is found in the Server Device Configuration window, accessible by selecting the print server and choosing **Server Device...** from the **Configuration** window.

3. Make sure you have a NetWare print server created and running on your NetWare file server. Consult your NetWare documentation for instruction on how to do this.

4. Choose **Netware Protocol...** from the *EtherP Admin* **Configuration** menu, or click the Configure NetWare button in the toolbar. Click on the **Remote Printer** tab.

5. Click on the port number button corresponding to the port you will be using for remote printer service.

6. Click on the **Bindery Remote Printer** selection. *EtherP Admin* will display a list of NetWare servers accessible from your network.

7. Click on the ⊞ symbol to the left of the server name to expand the list of print servers on the file server. Click on the name of the print server you will be using.
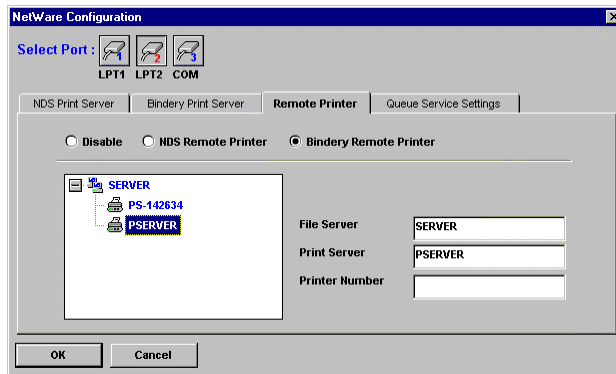
8. Determine what printer numbers are available on the given print server, and enter an unused printer number in the Printer Number field. Printer numbers can range from 0 to 15.

9. Click **OK**, then choose **Save Configuration** from the **Configuration** menu (or press the Save Configuration toolbar button) to change the settings in the print server and the NetWare server. The print server will restart itself and begin serving as a remote printer for the specified print server.

Printing from Client Workstations

Once your print server is set up for printing from the file server, your network's client workstations can connect to the file server's print queue.

Windows 95 Client Workstations

To enable your Windows 95 workstation to print to a NetWare print queue,

1. From the **Start** menu, choose the **Settings** submenu, then the **Printers** item within it. Windows will display the Printers folder.

2. Double-click on the **Add Printer** icon in the Printers folder.

Windows will start the Add Printer Wizard.
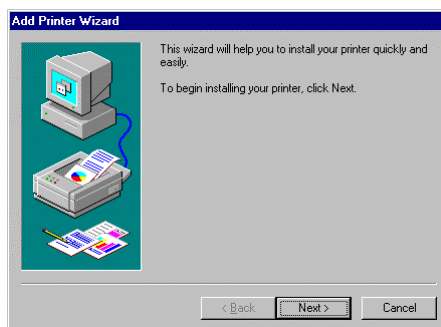
Press the **Next >** button to continue to the next screen.

3. Choose the **Network printer** selection and click the **Next >** button to continue.
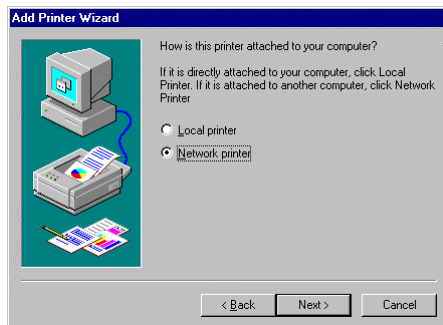
4. Enter the network path for the NetWare file server, specifying which print queue you want to connect to. For instance, to use the printer serving the queue named Q-LJ5L on the NetWare file server named SERVER, enter:

\\SERVER\Q-LJ5L

As an alternative to entering the network path, you can also use the **Browse...** button to locate the file server and print queue. Press the **Next >** button to continue.
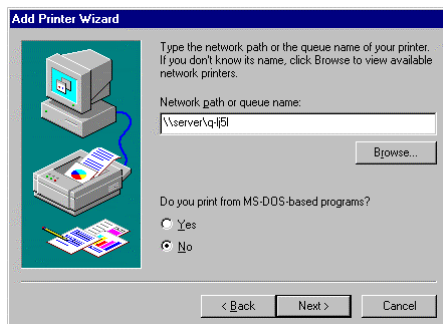
5. At this point Windows will ask you to choose the correct printer driver for the printer. Choose your printer's make and model from the list, or use the driver disk included with the printer. When you have chosen the correct printer, click **Next >** to continue.

6. Windows will then ask for a name for the new printer, and ask whether or not you want to set the printer as the Windows default printer. Click **Finsh** to continue.

7. Windows may ask you whether or not you wish to print a test page to make sure that the printer will work correctly. When the test page is done printing, you will be asked whether or not the test page printed.

Windows NT 4.0 (and later) Client Workstations

To enable your Windows NT 4.0 or later workstation to print to a NetWare print queue,

1. From the **Start** menu, choose the **Settings** submenu, then the **Printers** item within it. Windows will display the Printers folder.

2. Double-click on the **Add Printer** icon in the Printers folder.

Windows will start the Add Printer Wizard.

3. Choose the **Network printer server** selection and click the **Next >** button to continue.

4. Enter the network path for the NetWare file server, specifying which print queue you want to connect to. For instance, to use the printer serving the queue named Q-LJ5L on the NetWare file server named SERVER, enter:

\\SERVER\Q-LJ5L

As an alternative to entering the network path, you can also browse the network to locate the file server and print queue. Press the **OK** button to continue.

5. Windows will display the following message. Press OK to continue.

6. At this point Windows will ask you to choose the correct printer driver for the printer. Choose your printer's make and model from the list, or use the driver disk included with the printer. When you have chosen the correct printer, click **OK** to continue.

7. If you already have a default printer, Windows will ask if you wish to use the newly installed printer as the default.

8. When installation is complete, Windows will display the following dialog. Press the **Finish** button to complete installation.
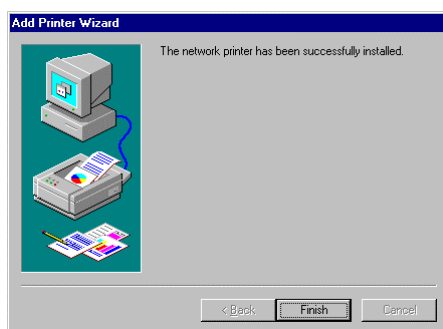
Windows NT 3.51 Client Workstations

To access a NetWare 3.*x* printer queue from your Windows NT 3.51 workstation,

1. Double-click on the Print Manager icon found in the Main program group.

2. In the Print Manager, choose **Connect to Printer...** from the **Printer** menu.

3. Enter the network path for the NetWare file server, specifying which print queue you want to connect to. For instance, to use the printer serving the queue named Q-LJ5L on the NetWare file server named SERVER, enter:
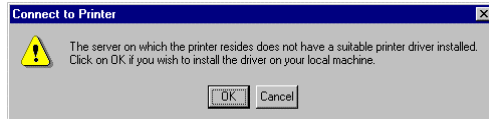
   \\SERVER\Q-LJ5L

   As an alternative to entering the network path, you can also browse the network to locate the file server and print queue. Press the **OK** button to continue.


4. Windows will display the following message. Press **OK** to continue.

5. Windows will ask you to choose the correct printer driver for the printer. Select a driver and press **OK**.

6. The printer should now be available for use.

Windows 3.x and Windows for Workgroups 3.11 Workstations

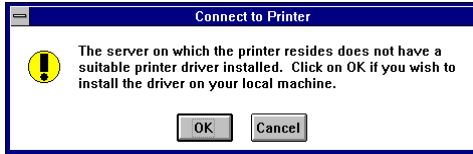To access a NetWare 3.*x* printer queue from your Windows 3.x or Windows for Workgroups 3.11 workstation,

1. Double-click on the Print Manager icon found in the Main program group.

2. In the Print Manager, choose **Printer Setup...** from the **Options** menu. The Print Manager will display the Printers dialog window.

3. If necessary, click on the **Add >>** button. Choose the correct printer driver, and click **Install...**.
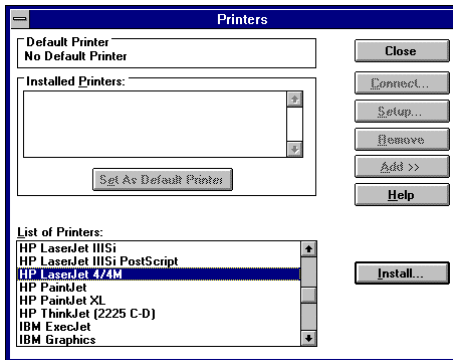
4. When the printer driver has been correctly installed, select the printer in the Installed Printers list and click the **Connect...** button.
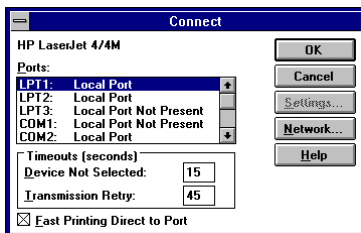
5. Click the **Network...** button to display the NetWare printer connections dialog. (If you are using Windows for Workgroups, you will also have to push the **NetWare...** button in the Connect Network Printer dialog.)

6. Click on the printer port you wish to capture and the printer queue you want it redirected to, and press **Capture**. Press **Permanent** to insure that the port will be redirected every time you start Windows. Click on the exit button when you are finished.
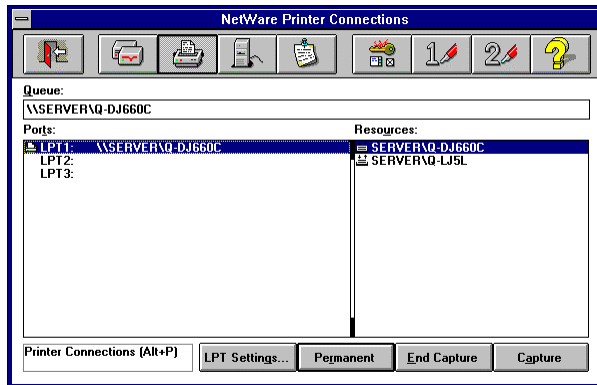
7. Exit the remaining dialogs by pressing OK. The printer should now be available for use.

MS-DOS/PC-DOS Workstations

For printing from DOS-based workstations, you can use the CAPTURE command to redirect one of the workstation's printer ports (LPT1, LPT2, or LPT3) to the network print queue. The syntax for the CAPTURE command is:

CAPTURE L=*n* S=*server* Q=*queue* TI=*n* F=*form* B=*bannername*

Choose values for the options as follows:

♦ **L=*n*** Determines which local port will be redirected to the network print queue. L=1 corresponds to LPT1, L=2 corresponds to LPT2, and L=3 corresponds to LPT3. By default, LPT1 is captured.

♦ **S=*server*** Determines which server the print queue is located on. By default, your login file server is used.

♦ **Q=*queue*** Determines which print queue your print jobs are redirected to.

♦ **TI=*n*** Sets the timeout for Autoendcap. After your application starts printing, if it goes for n seconds without any additional printer output, then NetWare assumes that the print job is finished and sends it to the printer. If your print jobs are becoming split up you may need to increase this setting.

♦ **F=*form*** Determines which form print jobs will use. Forms can be defined using PRINTDEF.

♦ **B=*bannername*** Sets the text that appears on the banner for the job. By default the banner text is LST:. You can disable the banner entirely using the **NB** option.

You can add the CAPTURE command to your network startup batch file, or add it to your login script preceded with a # symbol.

NetWare Settings

If necessary, you can use the **Queue Service Settings** tab of the NetWare Configuration dialog window to set several of the print server's parameters.

To access the **Queue Service Settings** tab,

1. Choose **Netware Protocol...** from the *EtherP Admin* **Configuration** menu, or click the Configure NetWare button in the toolbar. Click on the **Queue Service Settings** tab.

2. Click on the port number button corresponding to the port requiring a parameter change.
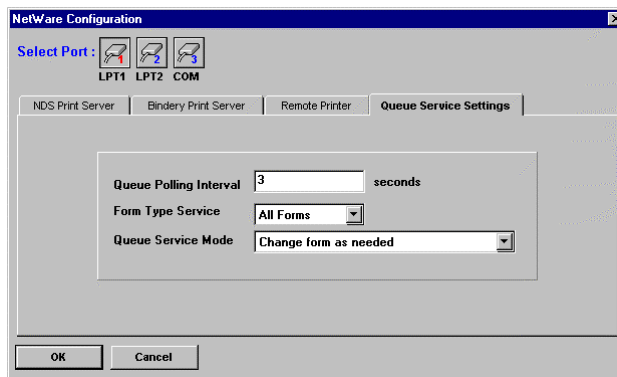
The parameters listed are:

♦ **Queue Polling Interval** This parameter determines how often the print server scans print queues on the file server(s), measured in seconds. A smaller number may mean that print jobs are printed with a smaller delay, but will also greatly increase the load on the server.

♦ **Form Type Service** This parameter, along with the queue service mode described below, determines how the print server handles forms when it is serving print queues.

Using the PCONSOLE program, you can define different forms, which identify the different types of paper that the printer can use (e.g., plain, letterhead, legal, A4, B4, etc.). Print jobs may specify what print form they wish to use. If a job requests a form that isn't currently loaded, it may be necessary for the printer operator to manually change forms before printing can continue.

If the form type service is set to All Forms, then the print server ignores the job's form and immediately prints all jobs sent to it. If it is set to Current Form, then the printer uses the Queue Service Mode parameter to determine how to handle form changes.

♦ **Queue Service Mode** Determines how the printer responds to changes in the current printing form:

◊ **Change as needed** Serves print jobs in order, stopping to allow a forms change every time it becomes necessary.

◊ **Minimize form changes within print queues** Reorders jobs within an individual print queue in order to minimize the number of form changes required. When a forms change is required, printing will stop to allow the change.

◊ **Service only currently mounted forms** Only services printer queue jobs that use a form that the printer already has. Jobs using other forms will be left in the queue to be served by other printers.

◊ **Minimize form changes across print queues** Reorders jobs across all of the print queues the printer serves in order to minimize the number of form changes required.

Setting up Novell NetWare 4.x Printing

HyperNet Fastprint network print servers support both the Bindery server database used with NetWare 3.*x* networks, and the NetWare Directory Services (NDS) network-wide database used with NetWare 4.*x* networks. This chapter explains how to use the network print server in an NDS environment.

Additional information about NetWare printing may be found in the previous chapter.

NetWare Directory Services

NetWare version 3.*x* stores information about users, file server volumes, print servers, print queues, and other objects in a database called the Bindery. NetWare server administration programs (such as SYSCON, PCONSOLE, and so on) modify entries in the Bindery to manage the operation of the file server.

The main disadvantage of the Bindery database is that it is limited to a single server. Networks with a large number of servers can become difficult to manage, because each server has to be configured separately. In large enterprises, this can result in disorganization as each department tries to administer its own NetWare servers, each in a different way. It can become troublesome or impossible to coordinate the administration of file servers across the entire enterprise.

For this reason, NetWare version 4.*x* introduced NetWare Directory Services, which allows administration on a global, as well as a local scale. NDS organizes objects not by file server, but by administrative domain.

The Network Directory Services database stores "objects" in a tree structure. Branches in the tree represent different regional offices, divisions, departments, or other ways of dividing administrative responsibility.

Objects, such as users, servers, server volumes, print servers, print queues, etc., can be placed anywhere within the tree structure. The whole tree structure is shared by all servers using the same tree. Changing a setting in the tree affects all servers, making it less necessary to manage servers individually.

For compatibility with existing NetWare 3.*x* clients and servers, NetWare 4.*x* provides Bindery emulation, which exposes objects in the server's context as Bindery objects.

Setting up as a NetWare Print Server

To set up your HyperNet Fastprint print server as a NetWare NDS print server, you will first need to create several NDS objects. You can do this using the DOS-based PCONSOLE or NETADMIN programs, or the Windows-based NWADMIN NetWare Administrator program. In this example, NWADMIN is used; consult your NetWare documentation for information about using PCONSOLE or NETADMIN to perform the setup.

To configure your print server for NetWare NDS printing,

1. Start the NWADMIN program. Expand the tree to display the context in the tree where you want to place the print server, and select the context.

2. Choose **Create...** from the **Object** menu. Select the object class Print Queue and press OK.
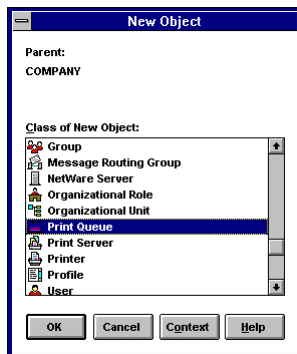
3. Enter a name for the print queue, and specify the NDS volume object of the file server volume where you want the print queue to be stored. Click the **Create** button.
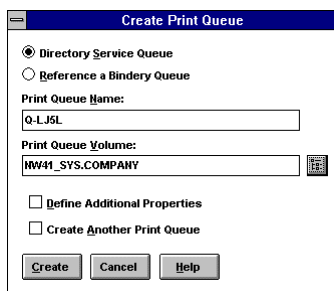
4. Select the NDS context again, and choose **Create...** from the **Object** menu. Choose the Printer object class and click OK.
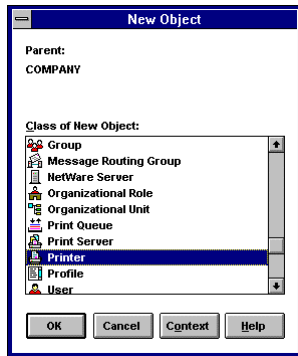
5. Enter a name for the printer object. The name should be the same as the print server's configured port name. Click **Create** to create the printer in your NDS context.
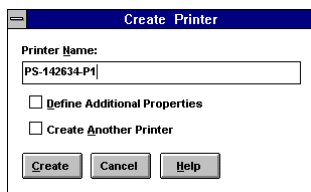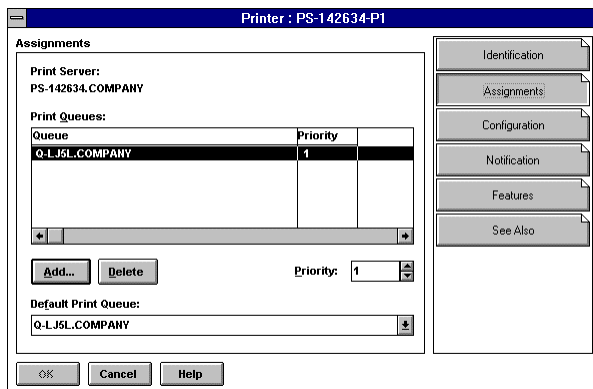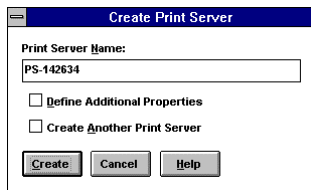

6. Double-click on the printer, then choose the Assignments tab. Click on the Add... button to select the print queue(s) you want the print server to serve, and optionally set their priority. Press OK to finish making print queue assignments for the printer.

7. Repeat from step 4 for each print server port you will be using.

8. Select the context again, and choose **Create...** from the **Object** menu. Choose the **Print Server** object type and press OK. Enter a name for the print server, which must be the same as the network print server's name. Click the **Create** button to create the print server object.

9. Double-click on the newly created print server object, and click on the **Assignments** tab. Click the **Add...** button to add each of the printer objects you created to the print server. Make sure that the printer number corresponds

properly to the port number; the first port should be printer number 0, the second port printer number 1, and so on. Press OK to complete print server assignments for the print server.
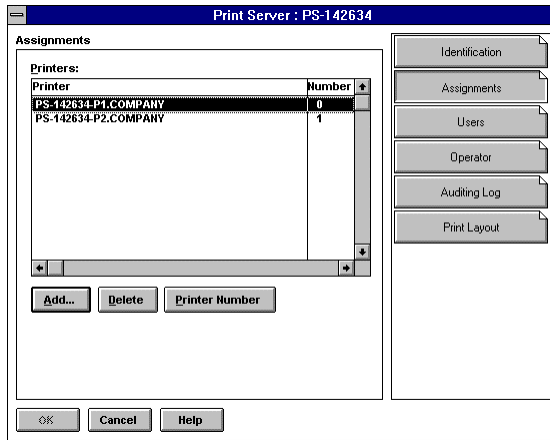
10. Start *EtherP Admin*, select the print server, and choose **NetWare Protocol...** from the **Configuration** menu. Click on the **NDS Print Server** tab.

11. Select the NDS tree and enter the context where you created the print server object, then press **OK**.

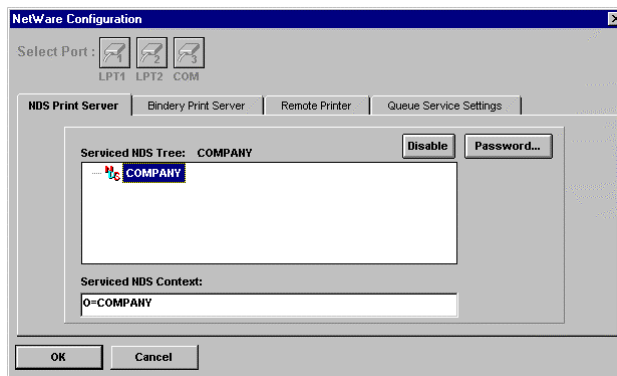**12.** Choose **Save Configuration** from the **Configuration** menu (or press the Save Configuration toolbar button) to change the settings in the print server. The print server will restart itself and begin serving the print queues assigned to its printer ports.

For more information about configuring print servers, printers, and print queues, consult your NetWare documentation.

Setting up as a NetWare Remote Printer

Your network print server can also be set up as NetWare remote printer. This allows slightly easier administration, but may increase printing delays. To set up a printer port as a remote printer port,

1. Make sure you are logged on to your NetWare server as Admin, or that you have permissions equivalent to Admin.

2. Make sure that the NetWare protocol is enabled in the server. This setting is found in the Server Device Configuration window, accessible by selecting the print server and choosing **Server Device...** from the **Configuration** window.

3. Make sure you have a NetWare print server created and running on your NetWare file server. Consult your NetWare documentation for instruction on how to do this.

4. Choose **NetWare Protocol...** from the *EtherP Admin* **Configuration** menu, or click the Configure NetWare button in the toolbar. Click on the **Remote Printer** tab.

5. Click on the port number button corresponding to the port you will be using for remote printer service.

6. Click on the **NDS Remote Printer** selection. *EtherP Admin* will display the tree structure of the NetWare NDS contexts accessible from your network.

7. Enter the name of the context you will be using, and enter the name of the print server in that context.
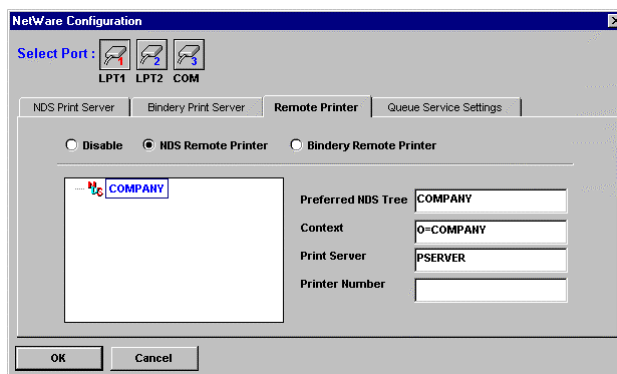
8. Determine what printer numbers are available on the given print server, and enter an unused printer number in the Printer Number field. Printer numbers can range from 0 to 15.

9. Click **OK**, then choose **Save Configuration** from the **Configuration** menu (or press the Save Configuration toolbar button) to change the settings in the print server. The print server will restart itself and begin serving as a remote printer for the specified print server.

Printing from Client Workstations

Once your print server is set up for printing from the file server, your network's client workstations can connect to the file server's print queue.

Windows 95 Workstations

Unless you are using the 32-bit NetWare requester from Novell, Windows 95 does not directly support NDS access. You can access NetWare 4.*x* printer queues using bindery emulation, as described on page 16 of this manual.

## Windows NT 4.0 (and later) Client Workstations

To print to a NetWare 4.x print queue from Windows NT 4.0 or later,

1. From the **Start** menu, choose the **Settings** submenu, then the **Printers** item within it. Windows will display the Printers folder.

2. Double-click on the **Add Printer** icon in the Printers folder.

Add Printer

Windows will start the Add Printer Wizard.

3. Choose the **Network printer server** selection and click the **Next >** button to continue.
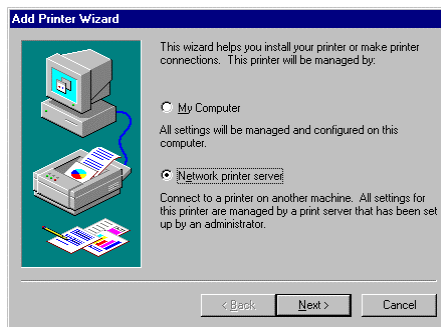
4. Locate the print queue you wish to attach to in the browser, and click **OK**. NetWare NDS contexts may be found beneath the "NetWare or Compatible Network" item.
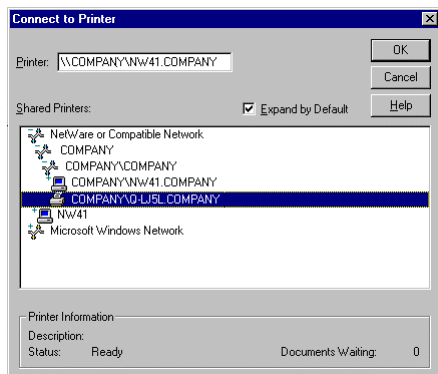
5. Windows will display the following message. Press **OK** to continue.
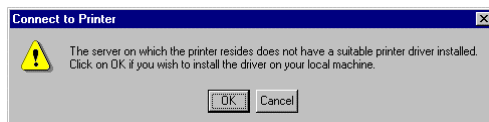
6. The Add Printer Wizard will ask you to choose the appropriate printer driver, and may ask you to insert your Windows NT installation diskettes to locate driver files.

7. When installation is complete, the Add Printer Wizard will display the following screen. Click **Finish** to complete printer installation.

Windows 3.1 and Windows for Workgroups 3.11 Workstations

To access a NetWare 4.*x* printer queue from your Windows 3.1 or Windows for Workgroups 3.11 workstation,

1. Double-click on the Print Manager icon found in the Main program group.

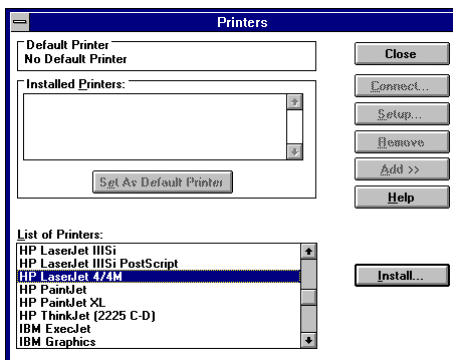**2.** In the Print Manager, choose **Printer Setup...** from the **Options** menu. Print Manager will display the Printers dialog window.

3. If necessary, click on the **Add >>** button. Choose the correct printer driver, and click **Install...**.

4. When the printer driver has been correctly installed, select the printer in the Installed Printers list and click the **Connect...** button.
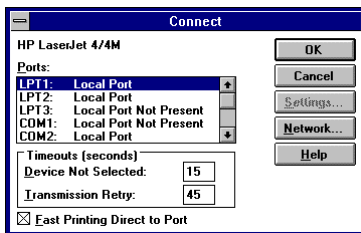
5. Click the **Network...** button to display the NetWare printer connections dialog. Click on the printer port you wish to capture and the printer queue you want it redirected to, and press **Capture**. Press **Permanent** to insure that the port will be redirected every time you start Windows. Click on the exit button when you are finished.
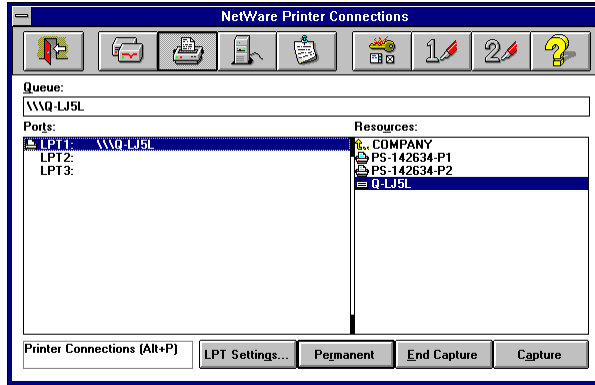
6. The printer should now be available for use.
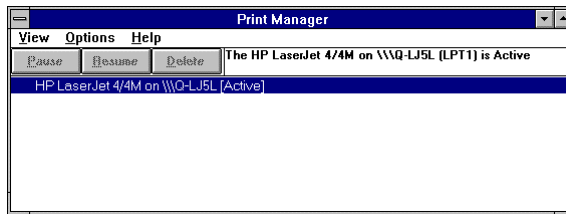
MS-DOS/PC-DOS Workstations

The use of the CAPTURE command on NetWare 4.*x* networks is the same as for NetWare 3.*x* networks. The CAPTURE command is described on page 21 of this manual, and in your NetWare documentation.

Setting up Microsoft Network Printing

Microsoft Networking services, based on the NetBEUI protocol, provide network users with peer-to-peer network services. In addition to accessing files and printers on a central server, any workstation can share its file directories and printer ports, making them accessible to other workstations.

HyperNet Fastprint network print servers are also capable of making attached printers accessible to Microsoft Networking workstations running network operating systems such as:

♦ Microsoft Windows for Workgroups 3.x

♦ Microsoft Windows 95 (or later)

♦ Microsoft Windows NT 3.51, 4.0 or later

♦ Microsoft LAN Manager

♦ IBM LAN Server

To improve printing efficiency, Microsoft Networking services clients can choose to print to a print queue stored on a Windows NT server, which can then forward the print jobs to the HyperNet Fastprint print server.

Setting up the Print Server for Microsoft Networking

Little additional setup is necessary for the print server to be usable from Microsoft Networking clients. First, the NetBEUI check box in the Server Device Configuration window needs to be checked. Select the print server and choose **Server Device...** from the **Configuration** menu to display this window.
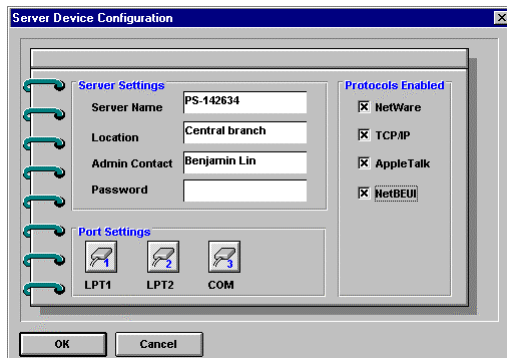
You should also set the *workgroup name* and maximum allowed connections. These settings are accessible from the NetBEUI Configuration dialog window, which you can display by choosing **NetBEUI Protocol...** from the **Configuration** menu.

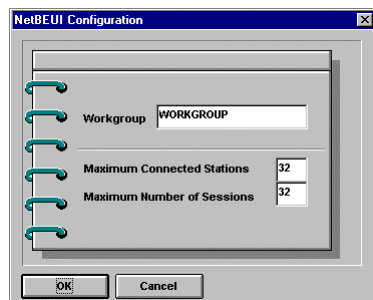Each Microsoft Networking workstation or server has a workgroup name. The workgroup name determines what servers and resources will show up by default in lists of accessible resources. You should assign to the print server the same workgroup name as the users who will be accessing it most often.

Network path names for printers on Microsoft Networking systems are of the form:

\\computer name\printer name

When the HyperNet Fastprint print server is used with Microsoft Networking, the Server Name (set from the Server Device Configuration window) is used for the *computer name* in the path, and the Port Name (set from the Parallel Port Configuration or Serial Port Configuration window) is used for the *printer name*.
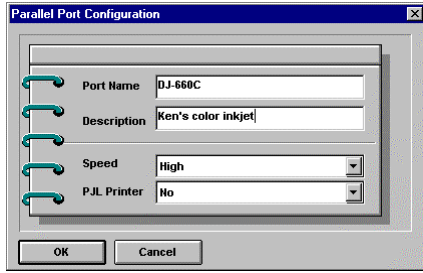
For example, the printer connected to the port named DJ-660C on server PS-142634 would be referred to by the path:

\\PS-142634\DJ-660C

Printing from Client Workstations

This section tells how to make it possible for your Microsoft Networking client workstations to access printers connected to your HyperNet Fastprint network print server.

Windows 95 Client Workstations

To allow your Windows 95 (or later) workstation to print over the network directly through your network print server,

1. From the **Start** menu, choose the **Settings** submenu, then the **Printers** item within it. Windows will display the Printers folder.

2. Double-click on the **Add Printer** icon in the Printers folder. Windows will start the Add Printer Wizard.

3. Press the **Next >** button to continue to the next screen.
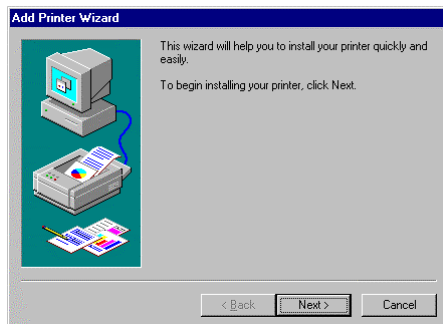
4. Choose the **Network printer** selection and click the **Next >** button to continue.
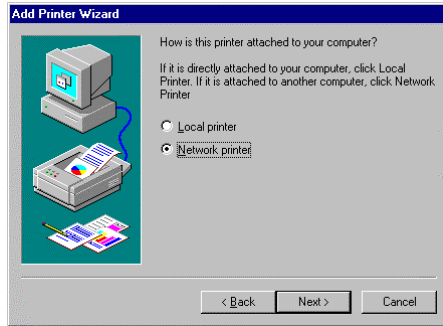
5. Enter the network path for your HyperNet Fastprint network print server, specifying which port you want to connect to. For instance, to use the printer connected to the port named PS-142634-P2 on the print server named PS-142634, enter:

\\PS-142634\PS-142634-P2

As an alternative to entering the network path, you can also use the **Browse...** button to locate the print server and printer. Press the **Next >** button to continue.
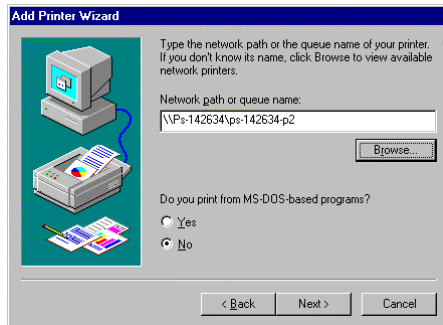
6. At this point Windows will ask you to choose the correct printer driver for the printer. Choose your printer's make and model from the list, or use the driver disk included with the printer. When you have chosen the correct printer, click **Next >** to continue.

7. Windows will ask for a name for the printer. Enter a name, or accept the default. Press **Finish** to complete the installation.

Windows NT 4.0 (and later) Client Workstations

To allow your Windows NT 4.0 (or later) workstation to print over the network directly through your network print server,

1. From the **Start** menu, choose the **Settings** submenu, then the **Printers** item within it. Windows will display the Printers folder.

2. Double-click on the **Add Printer** icon in the Printers folder.


   Windows will start the Add Printer Wizard.

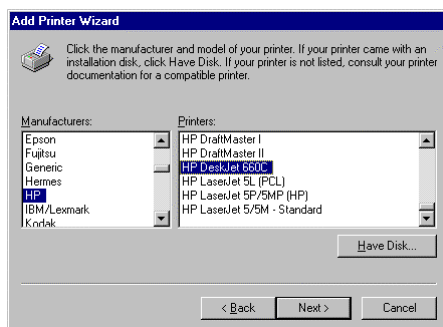3. Choose the **Network printer server** selection and click the **Next >** button to continue.

4. Enter the network path for your HyperNet Fastprint network print server, specifying which port you want to connect to. For instance, to use the printer connected to the port named PS-142634-P2 on the print server named PS-142634, enter:

   \\PS-142634\PS-142634-P2

   As an alternative to entering the network path, you can also browse the network to locate the print server and port. Press the **OK** button to continue.

5. Windows will display the following message. Press **OK** to continue.

6. At this point Windows will ask you to choose the correct printer driver for the printer. Choose your printer's make and model from the list, or use the driver disk included with the printer. When you have chosen the correct printer, click **OK** to continue.

7. If you already have a default printer, Windows will ask if you wish to use the newly installed printer as the new default.

8. When installation is complete, Windows will display the following dialog. Press the **Finish** button to complete installation.
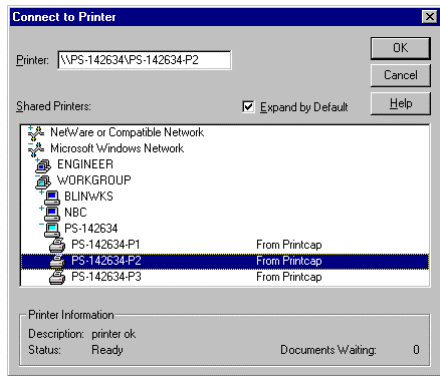

Windows NT 3.51 Client Workstations

To allow your Windows NT 3.51 workstation to print over the network directly through your network print server,

1. Double-click on the Print Manager icon found in the Main program group.

2. In the Print Manager, choose **Connect to Printer...** from the **Printer** menu.

3. Enter the network path for the print server, specifying which printer port you want to connect to. For instance, to use the printer connected to the port named PS-142634-P2 on the print server named PS-142634, enter:
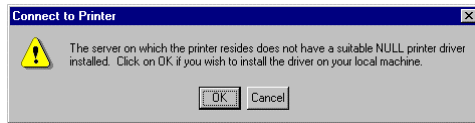
\\PS-142634\PS-142634-P2

As an alternative to entering the network path, you can also browse the network to locate the print server and port. Press the **OK** button to continue.
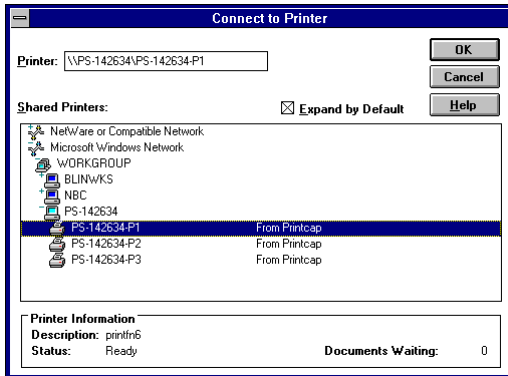
4. Windows will display the following message. Press **OK** to continue.
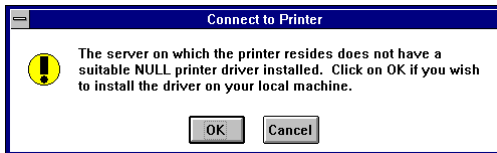
5. Windows will ask you to choose the correct printer driver for the printer. Select a driver and press **OK**.

6. The printer should now be available for use.

Windows for Workgroups Client Workstations

To enable network printing to your HyperNet Fastprint network print server from your Windows for Workgroups 3.11 workstation,

1. Start the Print Manager by double-clicking its icon in the Main program group.

2. From the Print Manager's **Options** menu, choose **Printer Setup…**. The Print Manager will display the Printers dialog window.
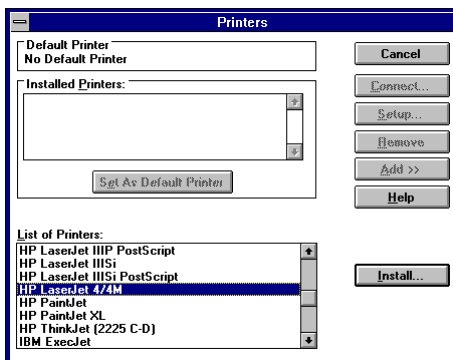
3. From the List of Printers, choose the appropriate printer type and click **Install**. If your printer type is not listed, you may have to choose "Install Unlisted or Updated Printer" and use a driver diskette provided by the printer manufacturer. The Print Manager program will install the printer's driver program, prompting you to insert diskettes as necessary. When driver installation is complete, the printer will show up in the Installed Printers list.
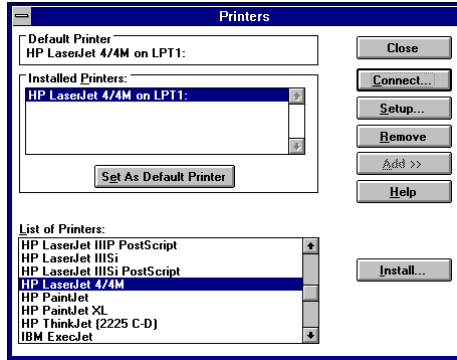
4. Select the printer in the Installed Printers list and click the **Connect...** button.

5. From the Connect dialog window, click **Network....** The Connect Network Printer window will be displayed.

6. In the Device Name field, choose a free printer port to be assigned to the network printer. (Any free port name will do.) Once the connection is made, all requests to print to that printer port will be redirected to the network printer.

7. Enter the network path for your HyperNet Fastprint network print server in the Path field, specifying which port you want to connect to. For instance, to use the printer connected to the port named PS-142634-P1 on the print server named PS-142634, enter:

\\PS-142634\PS-142634-P1

As an alternative to entering the network path, you can also browse the network to locate the print server and printer. Press **OK** to continue.
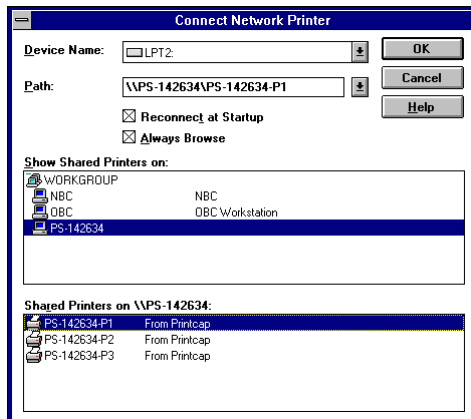
8. Select the newly connected printer port in the Connect dialog window, and click **OK**.
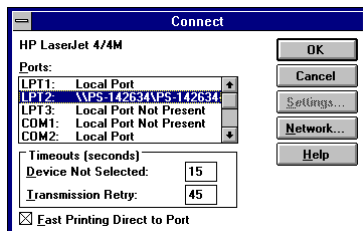
9. Click **Close** to close the Printers dialog window.

10. The printer will now appear in the Print Manager window, and will be accessible from all Windows applications, as well as for DOS applications executed from Windows.

MS-DOS/PC-DOS Workstations

To connect your MS-DOS/PC-DOS workstation using client software such as

♦ Microsoft LAN Manager client

♦ Microsoft NT Server client

♦ Microsoft Windows for Workgroups (DOS client)

you will normally use the NET USE command. To connect a DOS-based NetBEUI client to a printer attached to your HyperNet Fastprint print server,

1. Choose a free printer port (LPT1, LPT2, or LPT3) not being used on the workstation. If you never connect a printer directly to the workstation's physical printer port, you should probably choose LPT1.

2. Type the command

NET USE *port* *computer name**printer name*

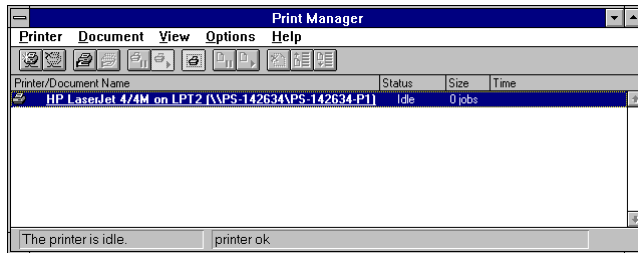where *port* is the name of the free printer port, *computer name* is the name of the HyperNet Fastprint print server, and *printer name* is the name of the print server's port. For example, to connect LPT1 to the printer on port PS-142634-P1 on the print server PS-142634, use the command:

NET USE LPT1 \\\\PS-142634\\PS-142634-P1

3. You can add the above line to your AUTOEXEC.BAT file if you always wish to be connected to the printer.

Keeping the Print Queue on a Windows NT Server

Because Microsoft Windows Networking is a peer-to-peer network, it is possible for clients workstations to connect directly to the HyperNet Fastprint network print server. However, because the print server's memory is limited, a client may have to wait for large print jobs to complete instead of letting the print server queue the entire job.

To reduce wait times for clients, you may wish to store the print queue on a Windows NT Server. For a Windows NT 4.0 server,

1. From the **Start** menu, choose the **Settings** submenu, then the **Printers** item within it. Windows will display the Printers folder.

2. Double-click on the **Add Printer** icon in the Printers folder.

   Add Printer

   Windows will start the Add Printer Wizard.

3. Choose the **My Computer** selection and click the **Next >** button to continue.
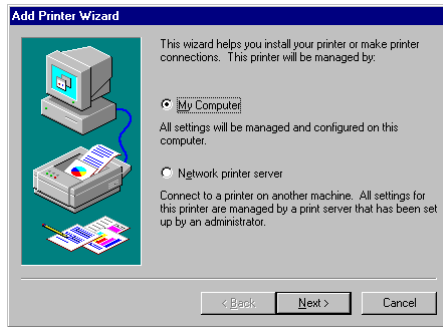
4. Check the box for an unused local port on your server, usually LPT2 or LPT3. Click the **Next >** button to continue.
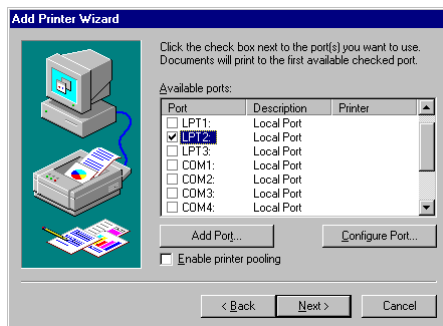
5. At this point Windows will ask you to choose the correct printer driver for the printer. Choose your printer's make and model from the list, or use the driver disk included with the printer. When you have chosen the correct printer, click **Next >** to continue.

6. Windows will give you opportunity to share the printer. Click the **Shared** selection, and give the printer a share name, then click **Next >** to continue.
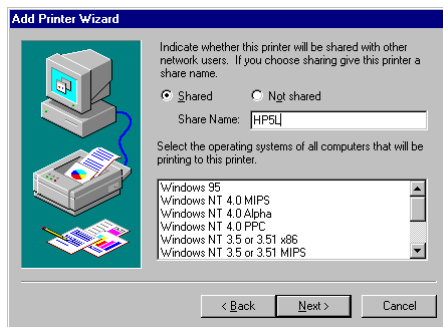
7. After you are finished adding the printer to the server, you need to redirect the local port to the print server using a NET USE command typed in from the Command Prompt:

NET USE LPT2 \\PS-142634\PS-142634-P1

You will need to execute this command every time the server is rebooted. You may wish to place it in a batch file, executed from the Startup program group.

For a Windows NT 3.51 server,

1. Double-click on the Print Manager icon found in the Main program group.

2. Choose **Create Printer...** from the **Printer** menu.

3. In the Create Printer dialog window, choose a name for the printer, select the proper driver, and choose an unused local printer port. Click the check box to allow the printer to be shared, and choose a share name (the name by which the printer will be known to network clients). Click **OK** to continue.

Create Printer	
Printer **N**ame: ANDYLW2	**OK**
Driver: Apple LaserWriter II NT v47.0	Cancel
D**e**scription: Andy's LaserWriter	Setup...
Print **t**o: LPT2:	Details...
⊠ **S**hare this printer on the network	Settings...
S**h**are Name: ANDYLW2	Help
Location: Andy's cubicle	

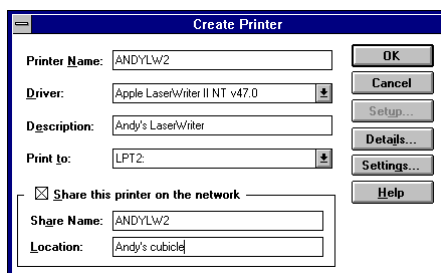4. After you are finished adding the printer to the server, you need to redirect the local port to the print server using a NET USE command typed in from the Command Prompt:

NET USE LPT2 \\PS-142634\PS-142634-P1

You will need to execute this command every time the server is rebooted. You may wish to place it in a batch file, executed from the Startup program group.

Setting up AppleTalk Printing

The AppleTalk network protocol is used with computers using the MacOS operating system. It can be used for network communications over standard Ethernet or Fast Ethernet using the EtherTalk transport, or over a proprietary low-speed LocalTalk transport.

Your HyperNet Fastprint network print server can be used for network printing to PostScript printers. You can print from any MacOS computer connected to your Ethernet network, either directly using an EtherTalk connection, or indirectly through a LocalTalk-to-EtherTalk router.

NOTE: *The User name of a printer connected to one of the HyperNet Fastprint print server's ports is the same as its port name. If you are using AppleTalk printing, you will need to make sure that every port name is unique among all of the network printers in your AppleTalk zone.*

Setting up the Print Server for AppleTalk Printing

To set up your print server so that it can be used for AppleTalk printing:

1. Make sure the AppleTalk protocol is enabled. The AppleTalk check box in the Server Device Configuration window needs to be checked. Select the print server and choose **Server Device...** from the **Configuration** menu to display this window.
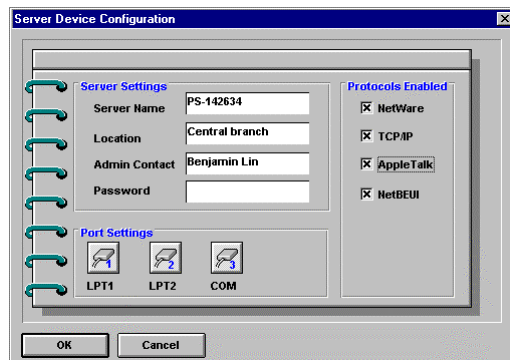
2. Choose **AppleTalk Protocol...** from the **Configuration** menu.

3. If your AppleTalk network is divided into *AppleTalk zones*, you will have to specify which zone the print server should be in. You should locate the print server in the same zone as most of the users who will be using it.

   If your network is not divided into zones, the AppleTalk Zone field should contain a single asterisk "*".
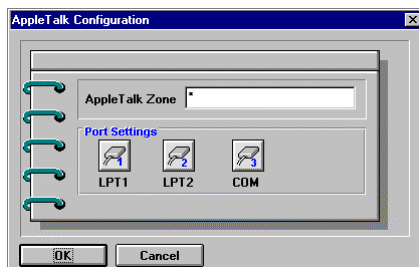
4. For each printer port that will be used for AppleTalk printing, you may need to change the AppleTalk port setttings. Press the appropriate Port Setting button to open the AppleTalk Port Configuration dialog window.

   EtherP Admin will display the port's Chooser Name (which is the same as the port name) and allow you to change the port's settings:

◊ **Printer Type** Describes the type of printer. Most PostScript printers should use the LaserWriter type.

◊ **PostScript Level** Describes whether the printer supports Level 1 PostScript or Level 2 PostScript. This information can usually be found in the printer's documentation or on the printer test page.

5. Press **OK** to return to the AppleTalk Configuration dialog. Repeat these steps for as many ports as necessary.

6. Press **OK**, then choose **Save Configuration** from the **Configuration** menu (or press the Save Configuration toolbar button) to change the settings in the print server. The print server will restart itself and begin serving print jobs.

Printing from MacOS Client Workstations

The exact procedure for selecting a PostScript printer connected to your HyperNet Fastprint print server may vary slightly, depending on what printer driver version you are using. The procedure described below assumes you are using the LaserWriter 8 print driver, included with recent versions of the MacOS operating system.

To choose a printer connected to your HyperNet Fastprint print server as your MacOS workstation's default printer,

1. Open the Chooser by selecting **Chooser** from the Apple menu.

2. Select the LaserWriter 8 icon on the left. Make sure that AppleTalk is set to Active.

3. A list of all networked PostScript printers will be displayed:
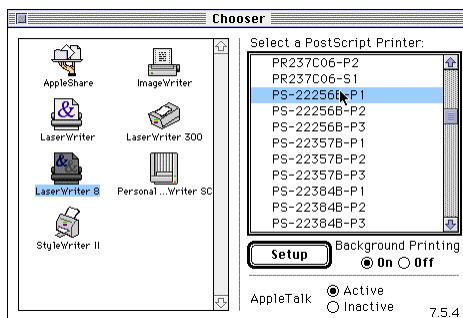
Click on the name of the printer (port) you wish to use.

4. If you previously have not set this printer as the default, your computer will prompt you for a PostScript Printer Description file. Choose the appropriate printer description file for your printer and click **Select**. If your printer is not listed, click **Use Generic** to use a generic printer description.
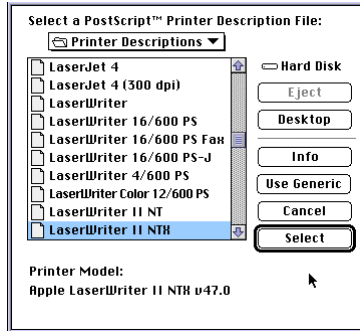
If you wish to access this setting in the future, you can use the **Setup** button in the Chooser window.

5. At this point the selected printer will become your computer's default printer. You may need to choose **Page Setup...** in any applications you might have open.

Setting up UNIX TCP/IP Printing

HyperNet Fastprint network print servers can provide print services to systems using the lpr/lpd network printing protocol. Most UNIX systems are capable of supporting lpd.

This chapter explains how to use *EtherP Admin* to configure the print server for TCP/IP printing, and how to configure your Unix workstations to print to the HyperNet Fastprint print server.

For TCP/IP networks without a Windows-based workstation available, you can use the telnet interface to configure the print server. See *Appendix: Telnet Interface Administration* on page 64 for more information about using the telnet interface.

Configuring TCP/IP Network Settings

To configure your HyperNet Fastprint network print server to allow TCP/IP-based printing, as well as SNMP and telnet-based management,

1. Make sure the TCP/IP protocol is enabled. The TCP/IP check box in the Server Device Configuration window needs to be checked. Select the print server and choose **Server Device...** from the **Configuration** menu to display this window.
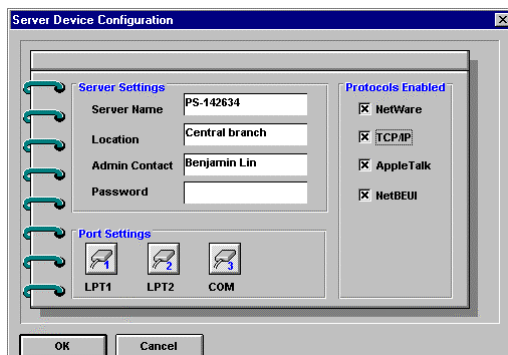
2. Choose **TCP/IP Protocol...** from the **Configuration** menu.

3. Configure the print server's IP address, local network subnet mask, and default gateway.

4. Press **OK**, then choose **Save Configuration** from the **Configuration** menu (or press the Save Configuration toolbar button) to change the settings in the print server.
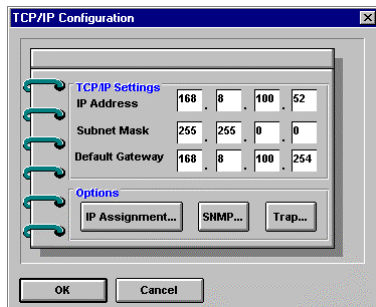
The print server will restart itself and will be available for lpd-protocol printing, as well as management using the telnet protocol and SNMP-based centralized network management.

Allowing SNMP-based Management

SNMP (Simple Network Management Protocol) has become the standard protocol for managing large networks from central management consoles. HyperNet Fastprint network print servers support the SNMP Management Information Base known as MIB-II, which collects basic statistics on the print server's basic TCP/IP and Ethernet networking operations.

SNMP (version 1) implements a rudimentary form of security by requiring that each request include a *community name*. A community name is an arbitrary string of characters used as a "password" to control access to the device. If the device receives a request with a community name it doesn't recognize, it will trigger an authentication trap.

HyperNet Fastprint network print servers allow up to three different community names to be defined, and the access rights for each community can be separately set to either *Read Only* or *Read/Write*. You will need to coordinate these names with the community name settings you use in your network management system.

To set community names for your print server,

1. Choose **TCP/IP Protocol...** from the **Configuration** menu

**2.** Press the **SNMP...** button to open the SNMP Configuration window.

3. As necessary, add community names and set the access level for each.

4. Press OK to exit the SNMP Configuration window.

Setting up SNMP Traps

The print server sends out SNMP *traps* to network management stations whenever certain exceptional events occur, such as when the print server is powered on or when an SNMP request is made using an unknown community name. The print server allows traps to be routed to up to three different network management hosts.

To enable traps for your print server,

1. Choose **TCP/IP Protocol...** from the **Configuration** menu

2. Press the **Trap...** button to open the Trap Configuration window.
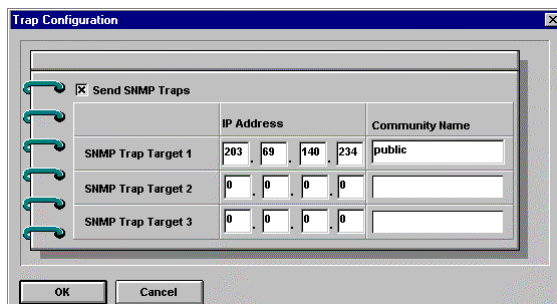
3. Check the **Send SNMP Traps** box to enable the sending of SNMP traps.

4. Set IP addresses and community names for each trap recipient.

5. Click **OK** to exit the Trap Configuration dialog window when you are done.

Printing Text Files from Unix

Text files on Unix systems contain lines that end with "newline" characters, as opposed to MS-DOS and the Windows-related operating systems that end with a carriage return followed by a linefeed. Most printers require a carriage return/linefeed pair at the end of each line, making it necessary for some translation to be done before Unix text files can be printed on most printers.

For this purpose, you can define two "printers" for the same printer port, one that prints to the port itself, and one that prints to the port name with _TEXT added to the name. Files printed to the second port will be translated so that the printer has the carriage return/linefeed pairs that it needs.

For example, you could define a printer hp5l that prints to port PS-142634-P1, and a printer hp5lt that prints to port PS-142634-P1_TEXT. Your graphics files could then be printed to the hp5l printer, and "raw" text files could be printed to the hp5lt printer.

Printing from BSD Unix Versions

For "flavors" of the Unix operating system derived from or related to the BSD releases, such as SunOS 4.x, Linux, BSD/OS, FreeBSD, or NetBSD, you can use the following procedure to enable users to print to a printer connected to your HyperNet Fastprint network print server:

1. Log in as the superuser (root).

2. Add an entry for the print server in the host's /etc/hosts file, giving a hostname for the print server's IP address. A line in /etc/hosts contains an IP address and one or more aliases for the host. For example:

202.39.74.40   ps-142634 ps-142634.dlink.com.tw

If you use DNS (the Domain Naming Services protocol), you can add an address record entry to your DNS database for the print server.

3. Create a spool directory for the printer:

◊ On SunOS systems, create the directory as a subdirectory of /var/spool, with the same name as the printer (e.g., /var/spool/hp5l).

◊ On Linux systems, create the directory as a subdirectory of /usr/spool/lp.

◊ On BSD/OS, FreeBSD, or NetBSD systems, create the directory as a subdirectory of /var/spool.

4. Change the owner and permissions of the directory so that it is owned and writable by group daemon, using the following commands:

chown bin.daemon /var/spool/hp5l

chmod 775 /var/spool/hp5l

5. Add an entry for the printer to /etc/printcap, similar to the following:

hp5l:\
      :lp=:sd=/var/spool/hp5l:mx#0:\
      :rm=ps-142634:rp=PS-142634-P1:

The meaning of each of the entries is described below. The directory path in the sd spool directory entry should match the directory name you created above. If your entry requires more than one line you can escape the newline with a backslash.

6. Issue the command

lpc start hp5l

to start a spool daemon for the printer. The printer will now be available for use.

7. Optionally, add another printcap entry (and issue another lpc start command) for a second printer, using the *port*_TEXT port. This second printer name can be used for printing text files.

Entries in /etc/printcap begin with a name for the printer or a list of names, separated by | (a vertical bar). The entries used above are:

- ♦ **lp=** The lp entry is used to specify a local printer device. Since the printer is a remote printer, this entry should be blank.

- ♦ **sd=***dir* The location of the printer's local spool directory.

- ♦ **mx#***blocks* The limit for print job files in the local spool directory; 0 means no limit.

- ♦ **rm=***address* The host where the remote printer is located, in this case the HyperNet Fastprint print server.

- ♦ **rp=***printer* The name of the printer on the remote host. For the HyperNet Fastprint print server, the port name should be used. **Note:** this entry is case-sensitive.

Printing from SCO Unix System V/386

To allow printing to a printer attached to your HyperNet Fastprint network print server from a SCO Unix System V/386 host,

1. Login as the superuser (root).

2. Add an entry for the print server in the host's /etc/hosts file, giving a hostname for the print server's IP address. A line in /etc/hosts contains an IP address and one or more aliases for the host. For example:

202.39.74.40   ps-142634 ps-142634.dlink.com.tw

If you use DNS (the Domain Naming Services protocol), you can add an address record entry to your DNS database for the print server.

3. Change to the /dev directory, and issue the command

mkdev rlp

4. The script will ask:

Do you want to install or delete remote printing (i/d/q)?

Answer i and press Enter to continue.

5. The script will ask:

Do you want to change the remote printer description file /etc/printcap(y/n)?

Answer y and press Enter to continue.

6. The script will ask:

Please enter the printer name (q to quit):

Enter an alias for the printer on the local machine and press Enter. This name should be the same as the destination port name.

7. Answer r (remote printer) to the question

Is *printer* a remote printer or a local printer (r/l)?

8. When prompted with the question:

Please enter the name of the remote host that *printer* is attached to:

then enter the address of the HyperNet Fastprint print server. You can use the name you added to /etc/hosts in the step above.

9. Confirm that your entries are correct.

Is this correct? (y/n)

10. Answer the question:

Would you like this to be the system default printer? (y/n)

11. When you are done adding remote printers, enter q for the printer name.

12. Answer y to the question

Do you want to start remote daemon now (y/n)?

Once remote printing is set up, you can use the lp command to print jobs to the new printer. For more information, consult your SCO Unix documentation.

Printing from Solaris

To allow printing from a Sun Solaris workstation,

1. Login as the superuser (root).

2. Add an entry for the print server in the host's /etc/hosts file, giving a hostname for the print server's IP address. A line in /etc/hosts contains an IP address and one or more aliases for the host. For example:

202.39.74.40   ps-142634 ps-142634.dlink.com.tw

If you use DNS (the Domain Naming Services protocol), you can add an address record entry to your DNS database for the print server.

3. In OpenWindows, start the admintool program.

4. Click on the **Printer Manger** icon.

5. From the **Edit** menu, select **Add Printer**, then **Add Access to Remote Printer...**

6. Enter values for the fields as follows:

◊ **Printer Name** This field should contain the name of the printer port you wish to use. The field is case-sensitive.

◊ **Printer Server** This field should contain the IP address of the print server, or the alias name you added in step 2.

◊ **Printer Server OS** This field should be set to BSD.

7. Confirm the addition.

8. Optionally repeat the addition to add another printer for printing text files, with _TEXT appended to the port name.

Once you have added the new printer, you can use the lp command to print files to the printer. Consult your Solaris documentation for details.

Printing from Windows *NT*

Windows NT versions 3.51 and later support printing using the lpd protocol. To print to your HyperNet Fastprint network print server from a Windows NT 4.0 workstation or server,

1. Make sure that you have installed the TCP/IP protocol and the Microsoft TCP/IP Printing service. You can install these from the Network control panel if necessary.

2. From the **Start** menu, choose the **Settings** submenu, then the **Printers** item within it. Windows will display the Printers folder.

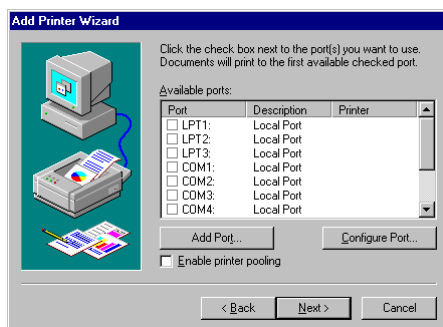**3.** Double-click on the **Add Printer** icon in the Printers folder.

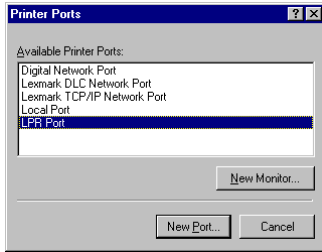Windows will start the Add Printer Wizard.

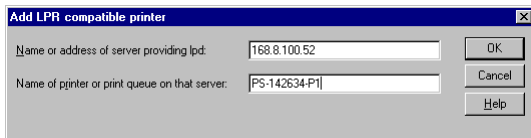**4.** Choose the **My Computer** selection and click the **Next >** button to continue.
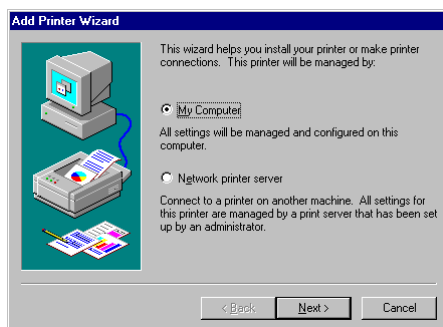
5. Click the **Add Port...** button to add the lpd print server to the list of ports.

6. Choose the LPR Port type and press **New Port...**.

7. Enter the IP address of your HyperNet Fastprint network print server, and the port name of the printer you wish to use.

8. Click **OK** to return to the Printer Ports window, and then click **Close** to return to the Add Printer Wizard.

9. Click **Next >** to continue installing the printer, following the on-screen instructions. The Add Printer Wizard will ask you to select the proper driver for the printer, and will ask you to give a name to the printer.

When you are done installing the printer, you will be able to use any of the usual printing commands to print to your printer.

Printing using TFTP

For testing purposes, you can also use the Trivial File Transfer Protocol (TFTP) to print to the print server. This is not a recommended method for ordinary printing, since it will not work if the print server is already printing.

On most systems, you can enter the command

tftp *ip-address*

to start the tftp client program. At the tftp prompt, you can type

put *file dest-port*

to print the local file named *file* to the print server port named *dest-port*. (Case is sensitive in the *dest-port* name.)

Printing using FTP

You can also use the Internet's standard File Transfer Protocol (FTP) to print to the print server. As with the TFTP method, this is recommended only for testing.

You can use any FTP client, including client programs with graphical interfaces. To use a command line version of FTP, on most systems you can enter the command

ftp *ip-address*

to start the ftp client program. At the ftp prompt, you can type

put *file dest-port*

to print the local file named *file* to the print server port named *dest-port*. (Case is sensitive in the *dest-port* name.)

EtherP Admin Administration

This chapter explains the *EtherP Admin* main window display, and tells how you can use *EtherP Admin* to perform common HyperNet Fastprint network print server administration tasks, including:

♦ Monitoring the status of printers connected to the print server's ports.

♦ Checking the status of NetWare print jobs.

♦ Configuring NetWare print services, including print servers, print queues, and printers.

♦ Resetting the print server.

♦ Upgrading the print server's internal flash memory using an updated flash memory file.

The EtherP Admin Main Window

The following shows a typical *EtherP Admin* main window display.
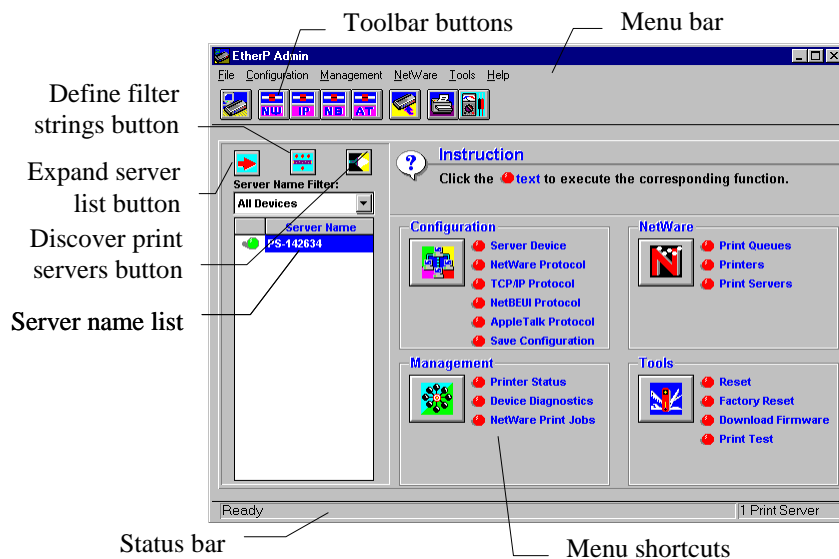
The main window contains the following elements:

♦ **Toolbar buttons** The toolbar buttons are shortcuts for their corresponding menu choices. The buttons on the toolbar are, from left to right: Configure Server, Configure NetWare, Configure TCP/IP, Configure NetBEUI, Configure AppleTalk, Save Configuration, Printer Status, and Device Diagnostics.

♦ **Menu Shortcuts** There are four groups of menu shortcuts on the main window, corresponding to the **Configuration**, **Management**, **NetWare**, and **Tools** menus in the menu bar.

♦ **Expand Server List button** The expand server list button expands the **Server Name List** into an extended format, shown below:
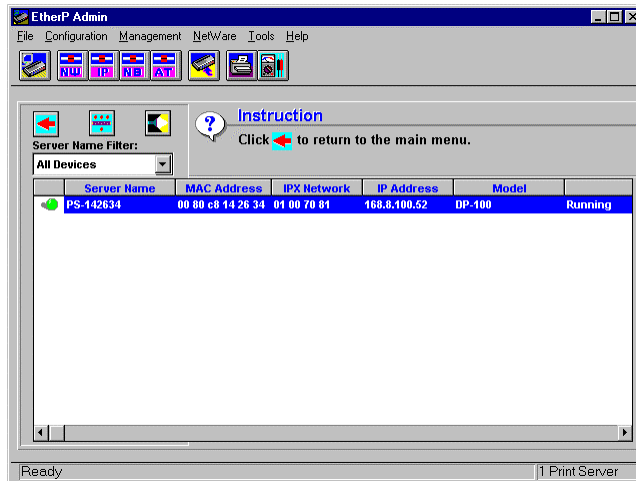
The extended server list format contains additional information about each server. To shrink the list back to the abbreviated format, press the button again.

♦ **Server Name Filter** The server name filter pulldown list allows you to choose an already-defined filter for limiting the Server Name List to a smaller set. You can use the **Define Filter Strings** button to define new filters, as described below in the *Filtering the List of Print Servers* section.

♦ **Discover Print Servers button** When a new print server is added to the network, you need to press the Discover New Print Servers button to update the *EtherP Admin* display. Pressing this button is the equivalent of choosing **Discover** from the **File** menu.

## Filtering the List of Print Servers

In an environment with a large number of print servers, you may wish to set up filters to make it easier to find individual print servers or groups of print servers.

Filters are similar to wildcards in DOS or other operating systems. A filter wildcard uses the wildcard characters * and ? to select a set of print servers. The ? wildcard character matches any character in a print server name, and the * character represents zero or more characters.

For example, to limit the print server display to servers MKT-01, MKT-02, MKT-03, ..., you could use the filter MKT-??. To display all servers with names beginning with S, you can use the filter S*.

To establish and use a new filter:

1. Press the **Define Filter Strings** button.
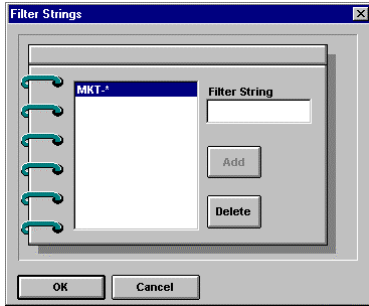
2. Enter a filter string and press the **Add** button.

3. Select the new filter string from the Server Name Filter pulldown list. The server list will be restricted to the list of servers that match the filter string.

4. To display all servers, choose All Devices from the Server Name Filter pulldown.

Working with Environment Files and Preferences

When *EtherP Admin* starts up, it first checks the network, looking for all HyperNet Fastprint network print servers. Since this may take awhile if you have a large network, you may want to use environment files to reduce the wait. An environment file stores the list of servers it has discovered, along with information about them.

To save an environment file,

1. Make sure that *EtherP Admin*'s list of servers is up-to-date. Press the **Discover Print Servers** button to update the list if necessary.

2. Choose **Save As...** from the **File** menu. Choose a file name for the file. By default the file will have a .ENV extension.

To tell *EtherP Admin* to open the environment file when it starts up instead of trying to discover all of the devices on the network,

1. Choose **Preferences...** from the **File** menu.

2. Click on the Load Environemnt File on Startup selection. Type in a filename, or use the **Browse...** button to locate the file on your hard disk.
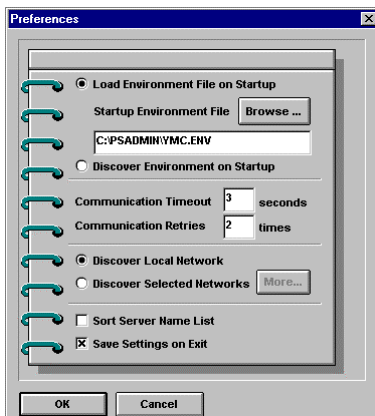
3. Click **OK**.

The settings accessible from the *EtherP Admin* Preferences dialog window are:

♦ **Load Environment File on Startup/Discover Environment on Startup**
Determines whether *EtherP Admin* should load a file listing all of the print servers on the network and their addresses, or if it should search the network each time it starts.

♦ **Communication Timeout** Determines how long *EtherP Admin* will wait for a request sent to the print server to receive a response. You may have to increase this number if you have a large network.

♦ **Communication Retries** Determines how many times *EtherP Admin* will try again if it doesn't receive a response from a print sever.

♦ **Discover Local Network/Discover Selected Networks** Determines whether *EtherP Admin* should discover print servers on your local IPX network only, or if it should also search other networks reachable from your workstation.

Pressing the **More...** button will display the IPX Network Segments window, which allows you to choose which networks will be searched. You can choose All Network Segments to discover servers on all reachable networks, or Selected Network Segments to select which networks you want to search in the displayed list.
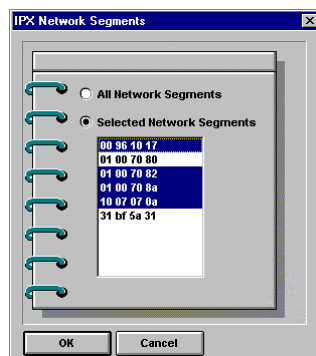

♦ **Sort Server Name List** Determines whether or not the list of servers should be sorted.

♦ **Save Settings on Exit** Determines whether or not *EtherP Admin* settings, for example filter definitions, should be saved when you exit *EtherP Admin*.

Monitoring Printer Status

By choosing **Printer Status** from the **Management** menu, you can monitor the status of each of the printers attached to the print server.

Pressing the Select Port buttons determines which port's status will be displayed.
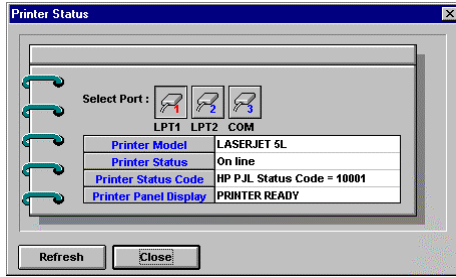
The Printer Status field shows whether the printer is on line, off line, is out of paper, or has an error. If the printer is compatible with HP's PJL (Printer Job Lanaguage) protocol, and you have enabled the use of PJL on the port (see the *Changing Print Server Port Settings* section on page 8 for instructions on how to do this), then the Printer Model, Printer Status Code, and Printer Panel Display fields will display information about the printer and its status.

Checking NetWare Print Jobs

The NetWare Print Jobs window, accessible from the **NetWare Print Jobs** selection of the **Management** menu, can be used to monitor NetWare bindery-based print queues being served by your HyperNet Fastprint network print server, and to change the form type being used on a port. The NetWare Print Jobs window is a convenient substitute for the NetWare PCONSOLE program for everyday queue-management tasks.
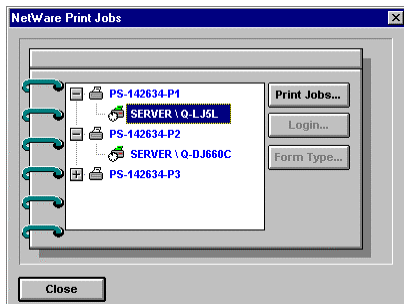

Selecting the ⊞ symbol to the left of the port name will expand the list of all of the queues served by the port. Selecting a print queue and pressing the **Print Jobs...** button will display the Manage Print Jobs window:
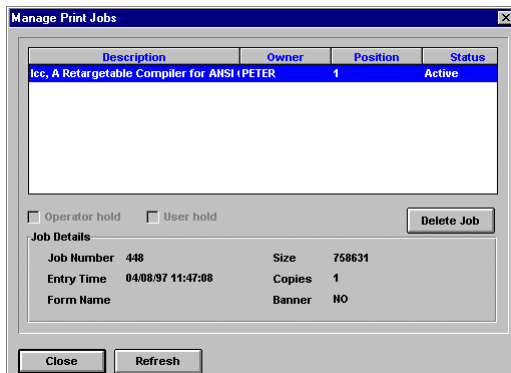
From this window you can view the list of jobs for the queue, and remove jobs if necessary by pressing the **Delete Job** button. Checking a job's **Operator Hold** box allows you to hold up the job in the print queue, leaving it in the queue until it is released (by un-checking the box). Similarly, if a print job user has placed a hold on a job, you can release the job to be printed by un-checking the **User Hold** box.

Selecting a port and pressing the **Form Type...** button will display the Form Type window, provided the port is not set to service All Forms (see the *NetWare Settings* section starting on page 21 for more information about the Form Type setting). From the Form Type dialog window, you can change the current form type available on the printer.
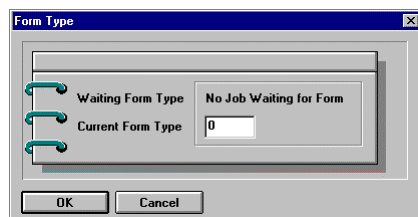
Form types can be defined with the NetWare PCONSOLE program. Each of the different kinds of paper that a printer might contain can be assigned a different form type, and print jobs can be configured to request the type of form they need. For more information about form types, consult your NetWare documentation.

Configuring NetWare Print Services

For convenience, the *EtherP Admin* program provides many of the same NetWare print services administration features as NetWare's PCONSOLE or the NetWare Windows-based administration tools. The *EtherP Admin* program allows you to conveniently manage NetWare Bindery-based print queues, printers, and print servers on any of your NetWare file servers.

Note that for managing print services on servers using NDS (NetWare Directory Services), you will need to use Novell-provided administration programs.

Managing Print Queues

Selecting **Print Queues...** from the *EtherP Admin* **NetWare** menu displays the NetWare Print Queues dialog window.
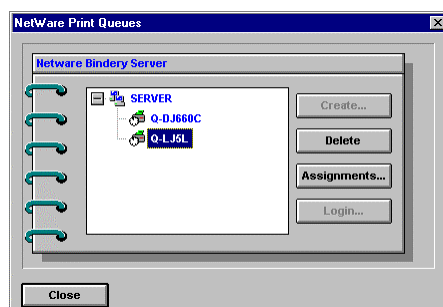
To create a new print queue, click on the name of the file server where you want to create the queue and press **Create...**. Enter a name for the queue and press **OK**.

To remove a print queue, select it and press **Delete**. To view and/or modify its list of assigned print servers, queue operators, or queue users, press **Assignments...**.

From the **Assign NetWare Print Servers** tab, you can assign already-defined print servers to the print queue you have selected, or remove print queue assignments. For information about defining print servers, see the *Managing Print Servers* section below.
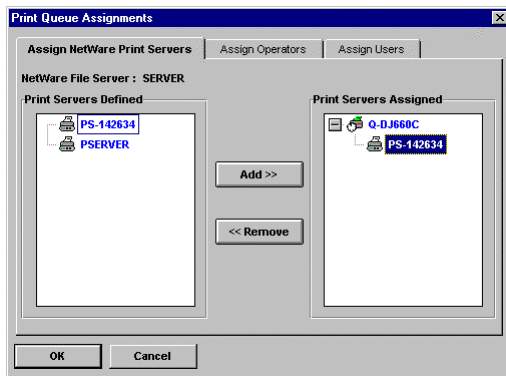

From the **Assign Operators** tab, you can determine what users are allowed to operate the queue. Queue operators are allowed to edit other user's print jobs, delete print jobs, change the order of print jobs, and modify the queue status.
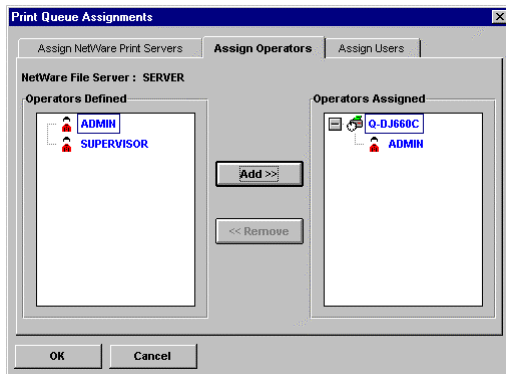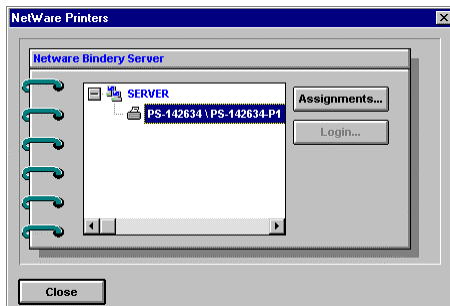

From the **Assign Users** tab, you can determine who is allowed to use the printer. For NetWare 3.x servers, normally the group EVERYONE, of which all users are members, is assigned to the queue users list. This means that all users can send jobs to the queue. If you want to restrict the use of the print queue, you can remove the group EVERYONE and add a smaller group, or you can add individual users. For NetWare 4.*x* servers, you will need to create such a group manually.
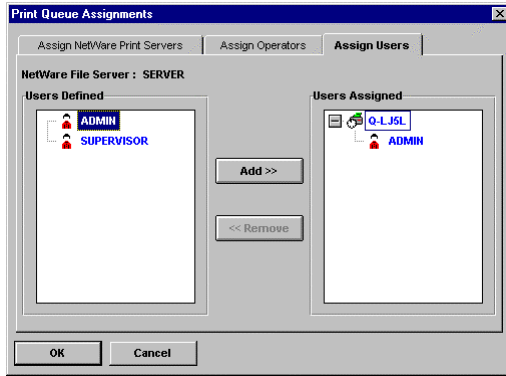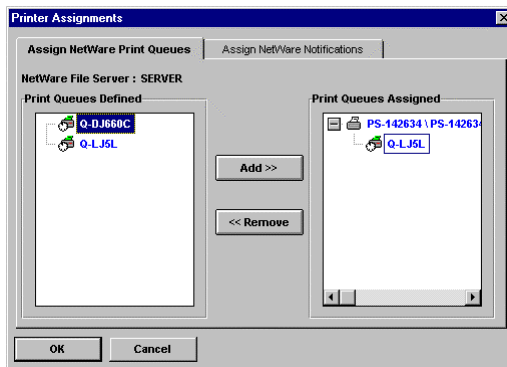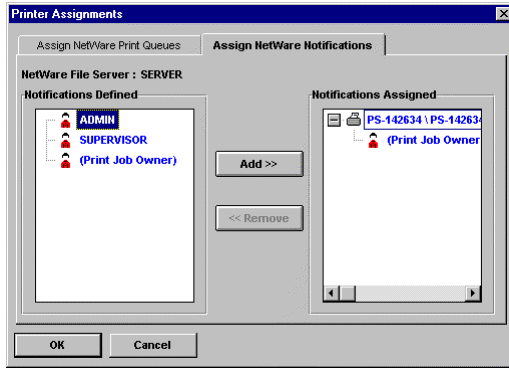
Managing Printers

Selecting **Printers...** from the *EtherP Admin* **NetWare** menu displays the NetWare Printers dialog window.

Clicking on a printer and clicking Assignments displays the Printer Assignments dialog. From the **Assign NetWare Print Queues** tab, you can determine which print queues are served by the printer, adding or removing queues from the assigned list.
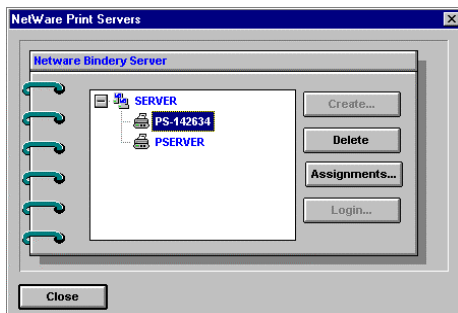

From the **Assign NetWare Notifications** tab, you can determine which users are notified if a problem occurs with the print job. By default, only the owner of the individual print job receives notification.

Managing Print Servers

Selecting **Print Servers...** from the *EtherP Admin* **NetWare** menu displays the NetWare Printers dialog window.


Selecting a file server and clicking **Create...** allows you to create a new print server. Selecting a print server and clicking **Delete** allows you to delete it, and clicking **Assignments...** displays the **Print Server Assignments** dialog window.

From the **Assign NetWare Printers** tab, you can define new printers in the selected print server, or remove printers from the server.
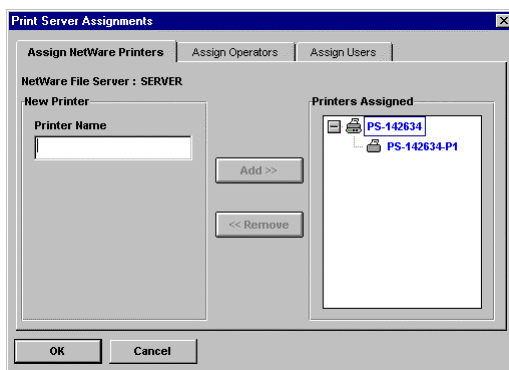
From the **Assign Operators** tab, you can add or remove users from the print server's operators list. Print server operators are allowed to attach the print server to other file servers, set printers' forms and notification lists, change the list of queues served and queue priorities, or down the print server.
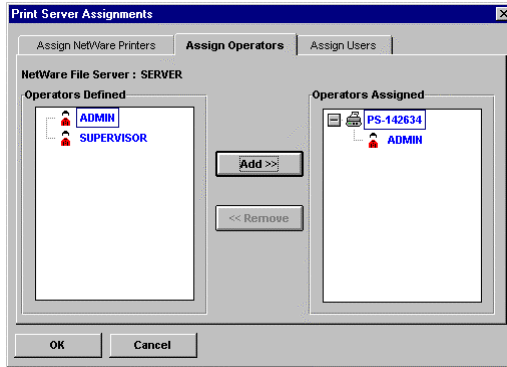
From the **Assign Users** tab, you can set the print server's user list. Print server users are allowed to monitor the print server's status. (It is not necessary to be a print server user to print to a queue served by the printer; one need only be a queue user.) By default on NetWare 3.x servers, the group EVERYONE is included, making it possible for all users on the file server to view the server's status.
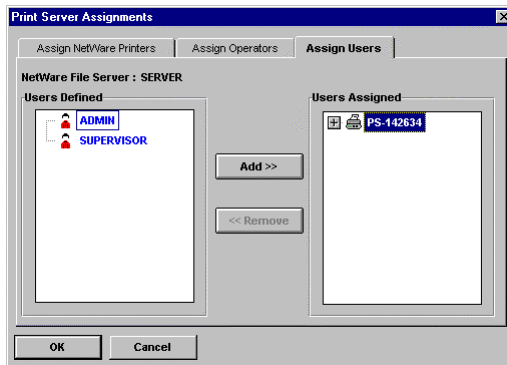
Resetting the Print Server

Sometimes it may be desirable to restart your network print server, in order to reset its internal statistics counters or to clear other status information.

There are two different ways to reset the print server:

♦ An ordinary reset has the same effect as powering off the print server and powering it back on again. Statistics counters will be cleared, but all of the print server's configuration settings will be retained.

♦ A factory reset not only restarts the print server, but changes all of its configuration settings back to their original values, as the print server was shipped from the factory.

WARNING: *Do not perform a factory reset unless you are absolutely sure this is what you want. All settings will be erased and replaced with their original values.*

To perform the reset:

1. Select **Reset** or **Factory Reset** from the **Tools** menu.

    2. *EtherP Admin* will ask for confirmation for the reset.

    3. Click **Yes** to confirm. The print server will reset itself. If you selected **Factory Reset**, all of the print server's default configuration values will be restored.

Upgrading the Print Server's Internal Firmware

The print server's internal software is stored in Flash memory, which allows you to upgrade it to an updated version without shipping the print server back to your distributor. Consult your dealer for information about when updated print server firmware versions are available.

You will also need to have copies of the updated firmware. Firmware updates are contained in to related files, a larger one with a .bin extension, and a smaller one having a .dwl extension. Both of these files are necessary for the download to be completed successfully.

To perform the download:

    1. Make sure you have backup copies of the previous version of the firmware image files before overwriting them with the new ones.

    2. Choose **Download Firmware...** from the *EtherP Admin* **Tools** menu. The print server will ask for the filename of the updated .bin image file.
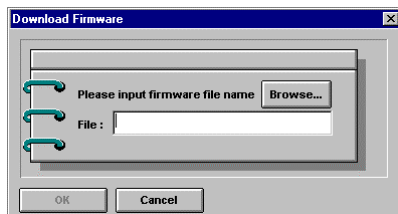
    3. Type in the pathname of the .bin file, or click the **Browse...** button to locate the file using a standard dialog box.

    4. Click **OK**. *EtherP Admin* will display an informational warning message.

    5. Click **OK**. The download will begin. *EtherP Admin* will display the progress of the download.
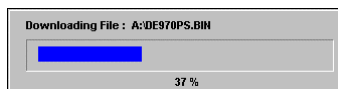
    6. When downloading is complete, *EtherP Admin* will display an informational message.

WARNING: *When downloading the image file, be very careful not to interrupt the transfer by powering down the print server or disconnecting it from the network. The print server should be able to recover from an interrupted transfer in most cases, However, in some situations it may be necessary to return your print server for servicing in order to recover from an interrupted download.*

Troubleshooting Print Server Problems

This chapter gives advice for identifying problems with your HyperNet Fastprint network print server.

Using the EtherP Admin Device Diagnostics Window

Choosing **Device Diagnostics...** from the *EtherP Admin* **Management** menu displays the Device Diagnostics window. From the Device Diagnostics window you can display many of the print server's settings and status items, allowing you to identify many types of print server problems.

The **Configuration** tab displays the print server's configuration settings, divided into different categories in a tree structure. You can expand branches of the tree to display entries beneath the branch.
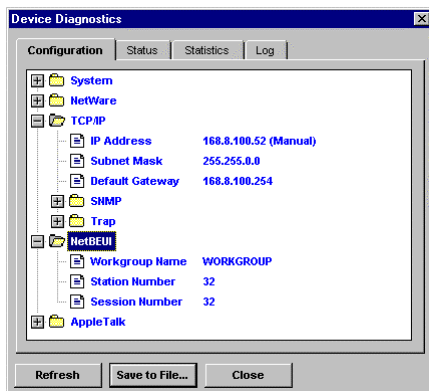
The **Status** tab shows the status of the print server's various subsystems.
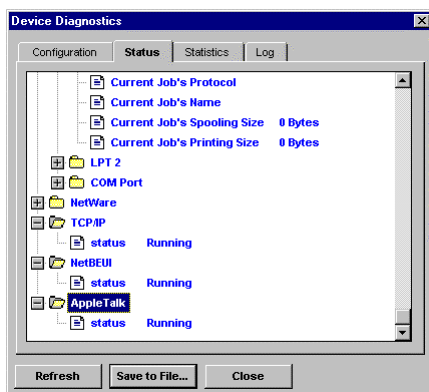
The **Statistics** tab shows collected statistics, also divided into various categories. (Many of these categories correspond to standard SNMP management information base categories.)
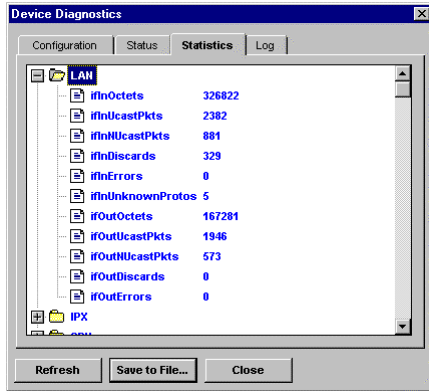
The **Log** tab contains a tree branch for each error that occurs. Error log entry branches contain detailed information about the problem, which should be able to assist your or technical support representative to locate the problem.

The **Save to File...** button at the bottom of the dialog window allows you to save a text file listing all of the entries in the Device Diagnostic window. You can use this function to keep a record of your print server's settings for future reference. The contents of this file may also be useful to your technical support representative if you encounter problems you are unable to resolve.

Appendix: Telnet Interface Administration

This appendix describes the use the telnet interface for controlling and configuring HyperNet Fastprint network print servers.

Setting an IP Address without EtherP Admin

The *EtherP Admin* program allows you to set your print server's IP address (and other TCP/IP parameters). If you don't have a Windows-based workstation and you need to set your print server's address, you can use a BOOTP (Boot Protocol) server, or the manual method described below.

If you want to use BOOTP, your local Ethernet network needs to have a BOOTP server. The BOOTP server table needs to have an entry listing the print server's Ethernet (MAC) address, the IP address you want to assign to the print server, the network's mask, and the default gateway (router) address. Consult your BOOTP server documentation for information about how to add an entry to the server table.

If you aren't using BOOTP, you can manually set the IP address using the following method:

1. Note your print server's Ethernet (MAC) address. The Ethernet address is a 12-digit hex number printed on a sticker on the bottom of your print server.

2. Use a host on the same local Ethernet network as the print server. Change your host's ARP (address resolution protocol) table to add a mapping from the IP address you want to assign to the print server's Ethernet address. For many TCP/IP systems, this is done with a command of the form:

arp -s *ip-address ethernet-address*

For example, to assign the address 202.39.74.40 to the print server with MAC address 00 80 C8 14 26 34, use the command:

arp -s 202.39.74.40 0080C8142634

Note: on a UNIX-based system, you will need to have superuser (root) permission to execute the arp command.

3. From the host with the modified ARP table, send an ICMP echo request to the print server using the ping command:

ping 202.39.74.40

When the print server receives an ICMP request at its own Ethernet address, but with a different IP address than the one it was expecting, it changes its IP address setting.

4. The print server will now respond to the new IP address. At this point you can use the telnet interface (as described below) to change the host's other settings.

Accessing the Telnet Interface

You can access your print server's telnet interface using an ordinary telnet client program. On many systems, the command to invoke a telnet client is:

telnet *ip-address*

Where *ip-address* is the IP address you have assigned to the print server.

When you first telnet to the print server, it displays its log-in message. At this point you can enter the password you have assigned to your print server. If you have not yet assigned a password, just press Enter.

The print server will then display the telnet interface main menu:

```
[Main Menu]
1 - Server Configuration
2 - Port Configuration
3 - TCP/IP Configuration
4 - AppleTalk Configuration
5 - Display Information
6 - Tools
7 - Save Configuration
0 - Quit

Enter Selection:
```

Changing TCP/IP Settings

Once you have set the print server's IP address for the first time (using the method described above), you may wish to change the address or other TCP/IP configuration information such as the local network mask, the default gateway, the accepted

SNMP community names, or the list of SNMP trap recipients. To change these TCP/IP settings,

1. From the main menu, choose TCP/IP Configuration. The print server will display the TCP/IP Configuration menu.

```
[TCP/IP Configuration]
1 - IP Address              <168.8.100.52>
2 - Subnet Mask             <255.255.0.0>
3 - Default Gateway         <168.8.100.254>
4 - SNMP Community
5 - SNMP Traps
6 - IP Assignment Method  <Manual>
0 - Return to Main Menu

Enter Selection:
```

2. To change the IP address, local subnet mask, or default gateway, choose the appropriate menu item. The print server will prompt you for a new value for the setting. Enter the new value and press Enter.

To change the SNMP community names, choose the appropriate menu item. The print server will display the SNMP Community menu:

```
[SNMP Community]
1 - Community Name 1      <public>
2 - Community Access 1    <Read/Write>
3 - Community Name 2      <>
4 - Community Access 2    <Read Only>
5 - Community Name 3      <>
6 - Community Access 3    <Read Only>
0 - Return to TCP/IP Menu

Enter Selection:
```

For each of the three community name "slots" that the print server supports, you can set the community name and the level of access (read-only or read/write) that requests using that community name have. SNMP-compatible Network Management System (NMS) stations can use the community names you have set to access management information and statistics collected by the print server.

To change an entry, select the corresponding menu item. When the print server prompts you for the new value, enter it and press Enter. When you are done changing community name settings, choose 0 to return to the TCP/IP Configuration menu.

To modify the SNMP trap settings, choose the appropriate menu item from the TCP/IP configuration menu. The print server will display the SNMP Trap menu:

```
[SNMP Traps]
1 - Traps                    <Disable>
2 - Target 1 IP Address      <203.69.140.234>
3 - Target 1 Community Name  <public>
4 - Target 2 IP Address      <0.0.0.0>
5 - Target 2 Community Name  <>
6 - Target 3 IP Address      <0.0.0.0>
7 - Target 3 Community Name  <>
0 - Return to TCP/IP Menu

Enter Selection:
```

By default, SNMP traps are disabled. Select the Traps item to enable or disable the sending of traps:

```
1. Disable
2. Enable
0. Return to SNMP Traps Menu

Enter Selection:
```

Once traps are enabled, you can assign up to three different hosts as designated trap recipients. With each trap recipient IP address, there is also an associated SNMP community name that will be included in the IP request. To change an IP address or community name, select the appropriate menu item and enter the desired value.

3. When you are done changing TCP/IP settings, choose 0 to return to the Main Menu.

4. Choose the Save Configuration menu item. The print server will ask for confirmation:

```
Do you really want to save the configuration?
(y/n)
```

Answer y to confirm the save. The telnet connection will drop, and the print server will reset itself, letting the new TCP/IP settings take effect.

Changing Server Settings

From the Server Configuration menu, you can change the server name, as well as the Location and Contact fields (used for identifying the location of the print server and the person responsible for maintaining it).

To change one of these settings,

1. From the main menu, choose Server Configuration. The print server will display the Server Configuration menu.

```
[Server Configuration]
1 - Server Name         <PS-142634>
2 - Location            <Central office>
3 - Admin Contact       <Benjamin Lin>
4 - Change Password
0 - Return to Main Menu


Enter Selection:
```

2. To change the server name, location, or admin contact, choose the appropriate menu item. The print server will prompt for the new value.

If you are setting the server name, be sure to follow the recommendations described in the *Choosing a Name for Your Print Server* section on page 6 of this manual.

3. When you are done changing the server settings, choose 0 to return to the Main Menu.

4. Choose the Save Configuration menu item. The print server will ask for confirmation:

```
Do you really want to save the configuration?
(y/n)
```

Answer Y to confirm the save. The telnet connection will drop, and the print server will reset itself, letting the new server configuration take effect.

Changing the Print Server Password

The print server password is used to protect the print server's configuration from changes, either through the *EtherP Admin* program, or through the telnet interface.

To change the print server's password,

1. From the main menu, choose Server Configuration. The print server will display the Server Configuration menu.

```
[Server Configuration]
1 - Server Name         <PS-142634>
2 - Location            <Central office>
3 - Admin Contact       <Benjamin Lin>
4 - Change Password
0 - Return to Main Menu


Enter Selection:
```

2. Choose the Change Password menu item. The print server will prompt for the old password:

```
Input Old Password  :
```

If there is no password, just press Enter.

3. The print server will prompt you to enter the new password. All password characters will be displayed as asterisks (*). You will then be prompted a

second time. Enter the same password as before to confirm that you have typed it correctly.

```
Input New Password  : *******
Confirm New Password: *******
```

4. Choose 0 to return to the Main Menu.

5. Choose the Save Configuration menu item. The print server will ask for confirmation:

```
Do you really want to save the configuration?
(y/n)
```

Answer Y to confirm the save. The telnet connection will drop, and the print server will reset itself, letting the new password setting take effect.

Changing Port Settings

Each port on the print server has several settings that you may need to change to suit your configuration and the printer you have attached to the port. Complete descriptions of each of these settings may be found in the *Changing Print Server Port Settings* section on page 8. To change one or more port settings,

1. Choose Port Configuration from the main menu. The print server will display the Port Configuration menu.

```
[Port Configuration]
1 - Port 1 (LPT1)
2 - Port 2 (LPT2)
3 - Port 3 (COM)
0 - Return to Main Menu

Enter Selection:
```

2. Select the port you wish to configure. The print server will display a menu appropriate to the port's type. For a parallel port, a menu similar to the following will be displayed:

```
[Port 1]
1 - Port Name           <PS-142634-P1>
2 - Description         <HP LaserJet 5L>
3 - Speed               <High>
4 - PJL Printer         <Yes>
0 - Return to Port Menu

Enter Selection:
```

For a serial port, the menu will be similar to the following:

```
[Port 3]
1 - Port Name            <PS-142634-S3>
2 - Description          <>
3 - Baud Rate            <9600>
4 - Data Bits            <8>
5 - Stop Bits            <1>
6 - Parity Bits          <None>
7 - S/W Flow Control     <XON/XOFF>
8 - H/W Flow Control     <DTR/RTS>
0 - Return to Port Menu


Enter Selection:
```

3. To change any of the displayed settings, choose the appropriate menu item. The print server will prompt for the new value.

4. When you are done changing settings for the port, choose 0 to return to the Port Configuration menu.

5. When you are done changing port settings, choose 0 to return to the main menu.

6. Choose the Save Configuration menu item. The print server will ask for confirmation:

```
Do you really want to save the configuration?
(y/n)
```

Answer Y to confirm the save. The telnet connection will drop, and the print server will reset itself, letting the new port settings take effect.

Changing AppleTalk Settings

You can also change AppleTalk network settings from the telnet interface. On Macintosh-only networks, you can use a telnet client such as NCSA Telnet to configure your print server without requiring a Windows-compatible machine.

Selecting AppleTalk Configuration displays the AppleTalk Configuration menu:

```
[AppleTalk Configuration]
1 - Zone Name               <*>
2 - Port 1 Printer Type     <LaserWriter>
3 - Port 1 PostScript Level <Level 2>
4 - Port 2 Printer Type     <LaserWriter>
5 - Port 2 PostScript Level <Level 2>
6 - Port 3 Printer Type     <LaserWriter>
7 - Port 3 PostScript Level <Level 2>
0 - Return to Main Menu


Enter Selection:
```

To modify a selection, select its menu item and enter a new value. The meanings of each of the AppleTalk settings is described in the *Setting up the Print Server for AppleTalk Printing* section on page 41.

Displaying Configuration Information

The print server telnet interface provides two menu selections for displaying information about the print server and about the printers connected to it. From the main menu, you can select the Display Information selection to display the Display Information menu:

```
[Display Information]
1 - Display Configuration
2 - Display Port Status
0 - Return to Main Menu

Enter Selection:
```

The Display Configuration selection displays several pages of information about the print server's hardware and internal software, as well as its configuration settings. Information about the port settings is also included.

The Display Port Status selection displays statistics and information about the jobs printed on each of the print server's ports.

```
Port Number      1               2               3
============================================================
[Total Status]
Jobs             45              1               0
Sizes (KBytes)   23179           0               0
Timeouts         0               0               0
------------------------------------------------------------
[Current Job]
Printer Status   On Line         Off Line        On Line
Index            0               1               0
Protocol                         NETWARE
Name                             00C60001
Spooling Bytes   0               172032          0
Printing Bytes   0               153600          0
============================================================

1 - Refresh Port Status
0 - Return to Display Information Menu

Enter Selection:
```

Resetting the Print Server

Sometimes it may be desirable to restart the print server, in order to reset its internal statistics counters or to clear other status information.

The telnet interface provides two different types of reset:

♦ An ordinary reset has the same effect as powering off the print server and powering it back on again. Statistics counters will be cleared, but all of the print server's configuration settings will be retained.

♦ A factory reset not only restarts the print server, but changes all of its configuration settings back to their original values, as the print server was shipped from the factory.

WARNING: *Do not perform a factory reset unless you are absolutely sure this is what you want. All settings, including the print server's TCP/IP network address, will be erased and replaced with their original values.*

To reset the print server,

1. Choose Tools from the Main Menu.

```
[Tools]
1 - Reset
2 - Factory Reset
3 - Download Firmware
0 - Return to Main Menu

Enter Selection:
```

2. Choose the Reset or Factory Reset menu item, depending on the type of reset you wish to perform. The print server will ask for confirmation.

3. Confirm the reset by entering y and pressing Enter. The telnet connection will drop, and the print server will reset itself. If you selected Factory Reset, all of the print server's default configuration values will be restored.

Upgrading Print Server Firmware

The print server's internal software is stored in Flash memory, which allows you to upgrade it to an updated version without shipping the print server back to your distributor. Consult your dealer or check the Hypertec web site (www.hypertec.co.uk) for information about when updated print server firmware versions are available.

To upgrade your print server's firmware, you will need to have a TFTP server on your network. A TFTP (Trivial File Transfer Protocol) server is provided with most versions of the UNIX operating system, as well as with many other operating systems that support TCP/IP networking. Consult your system documentation for detailed information about establishing a TFTP server.

You will also need to have copies of the updated firmware. Firmware updates are contained in to related files, a larger one with a .BIN extension, and a smaller one having a .DWL extension. **Both** of these files are necessary for the download to be completed successfully. The files should be stored on your TFTP server with uppercase filenames.

To perform the download:

1. Make sure you have backup copies of the previous version of the firmware image files before overwriting them with the new ones.

2. Place the two firmware image files in the root of your TFTP server directory. (On some versions of the UNIX operating system, the TFTP server directory is found in /tftpboot.)

3. Connect to the print server using telnet, and select Tools from the Main Menu.

4. Choose Download Firmware. The print server will display the Download Firmware menu.

```
[Download Firmware]
1 - TFTP Server IP Address <0.0.0.0>
2 - Download
0 - Return to Tools Menu

Enter Selection:
```

5. Choose the TFTP Server IP Address selection. Enter the IP address of the system you have designated as the TFTP server. For example:

```
Input TFTP Server IP Address: 203.69.140.234
```

6. Choose the Download selection. Provided all files are set up correctly, the print server will download the .DWL file, reset itself (closing the telnet connection), and begin downloading the .BIN file. When this is complete, the print server will restart, using the updated version of the firmware.

WARNING: *When downloading the image file, be very careful not to interrupt the transfer by powering down the print server or disconnecting it from the network. The print server should be able to recover from an interrupted transfer in most cases, provided the TFTP server remains available. However, in some situations it may be necessary to return your print server for servicing in order to recover from an interrupted download.*

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Product Warranty

Hypertec Limited warrants the hardware components of the product to be in good working order for the life of the product from the date of purchase of the product from Hypertec or an authorised Hypertec dealer. Should the hardware components of the product fail to be in good working order at any time, Hypertec will, at its option, repair or replace the product.

Repair parts and replacement products will be furnished on an exchange basis, and will be either reconditioned or new. All replaced parts will become the property of Hypertec.

This warranty applies only to the original registered end user purchaser of the product and does not include service to repair damage resulting from accident, disaster, misuse, abuse or non-Hypertec modification of the product.

Additional components installed by the dealer or end user are not covered by this warranty. Apart from the above, no warranty is expressed or implied, including warranty of merchantability or warranty of fitness for use for a particular purpose.

The liability of Hypertec is limited to the repair or replacement of the product with a functionally equivalent or better product. Hypertec is not liable for any accidental, general, special, exemplary or consequential damages resulting from any product failure, even if Hypertec has been advised of the possibility of such damages.

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